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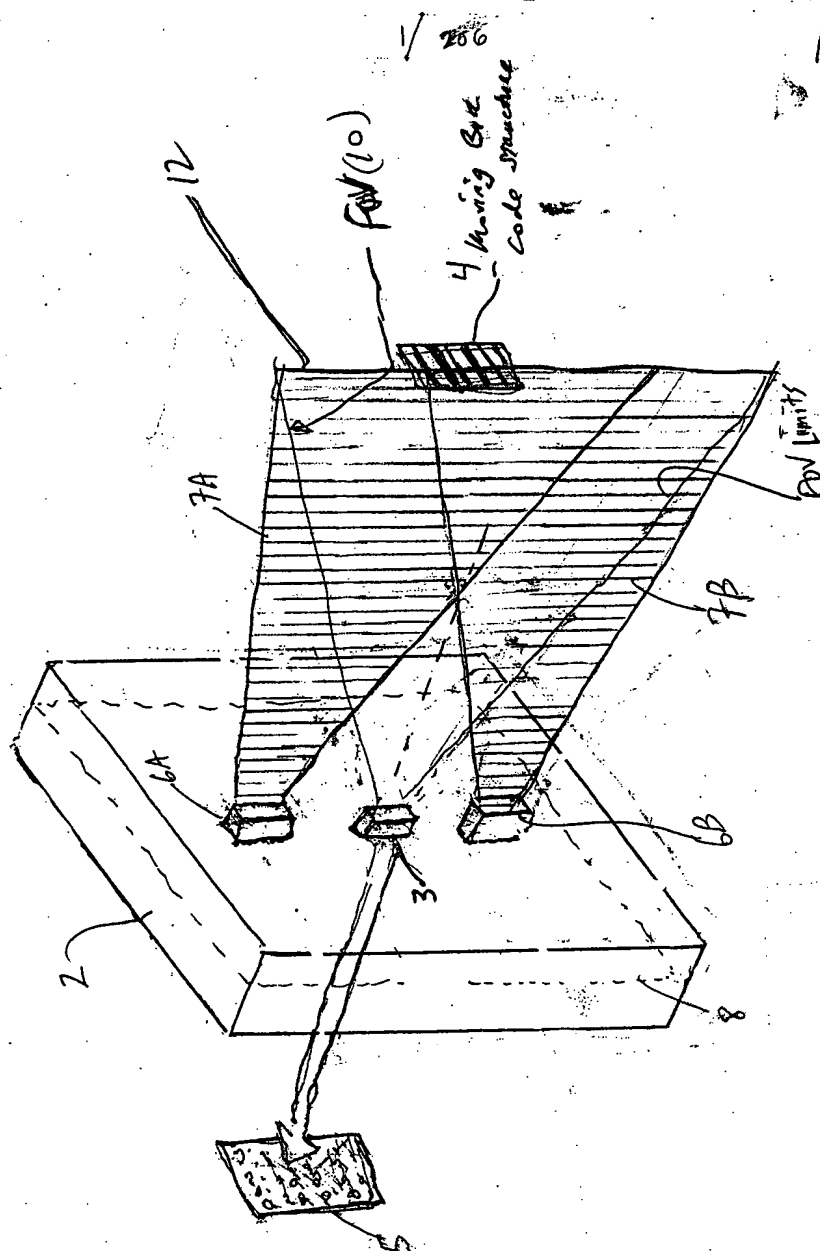
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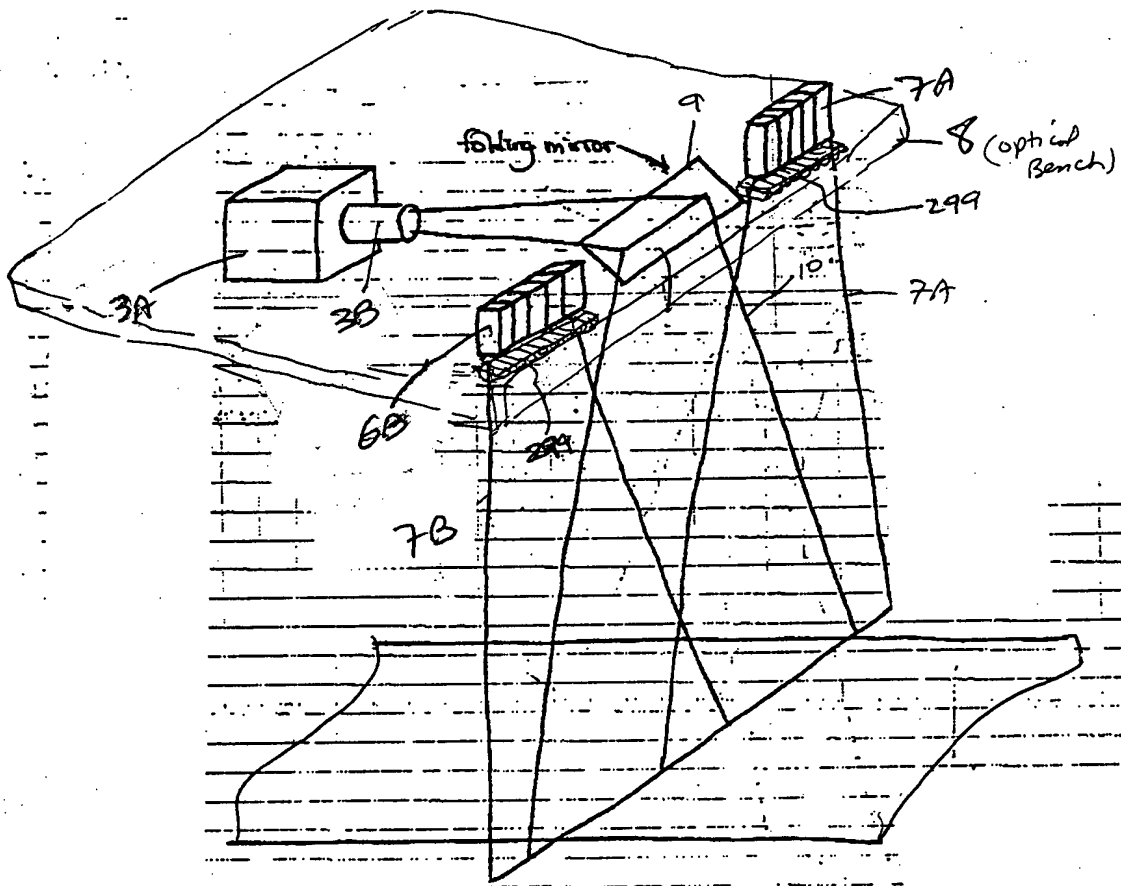


FIG. 1B1

1A

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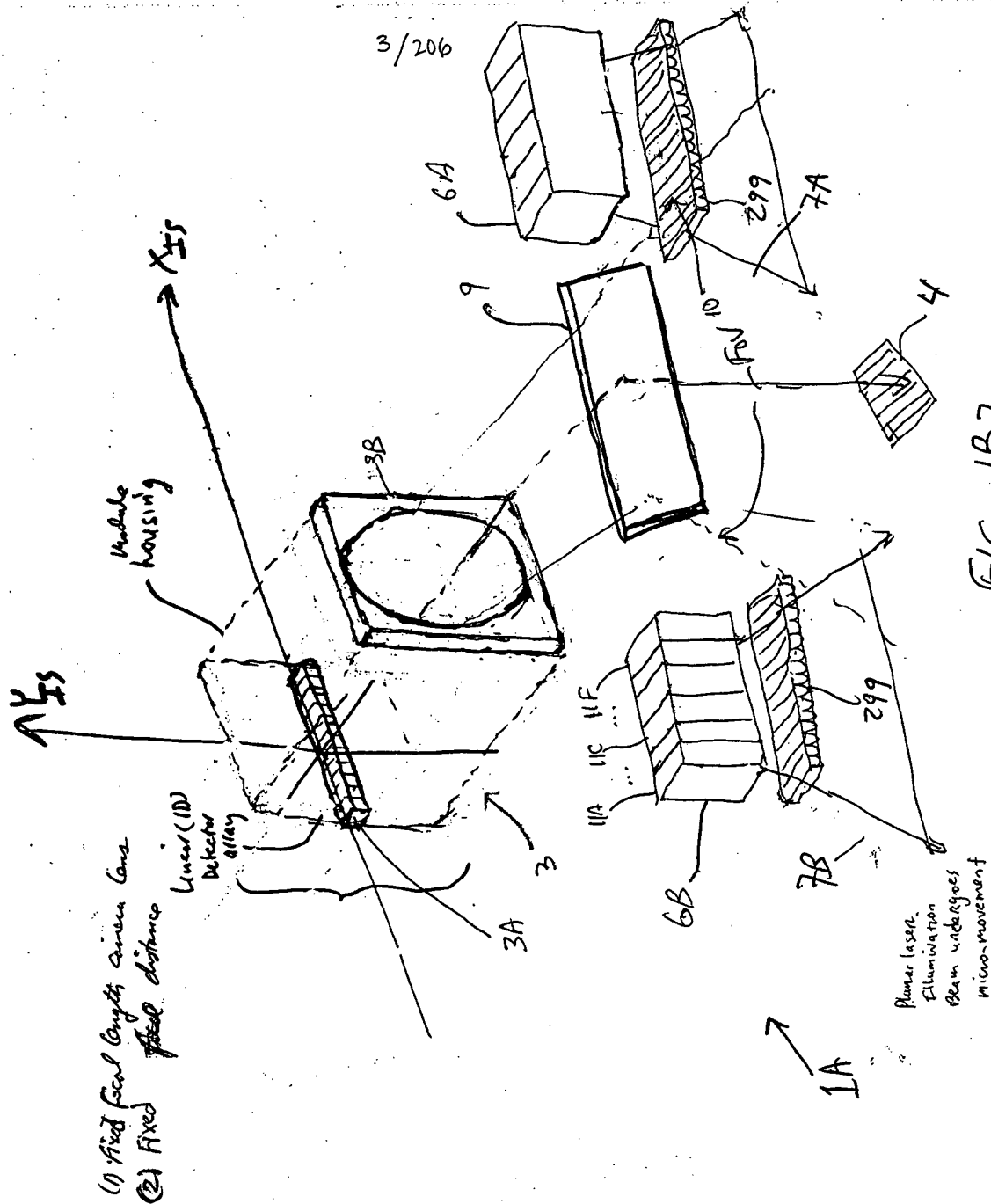


FIG. 1B2.

1

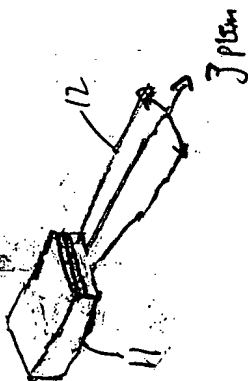


FIG. 1C

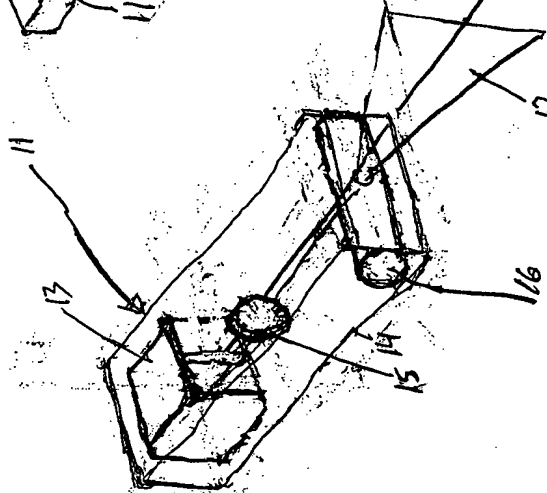


FIG. 1D

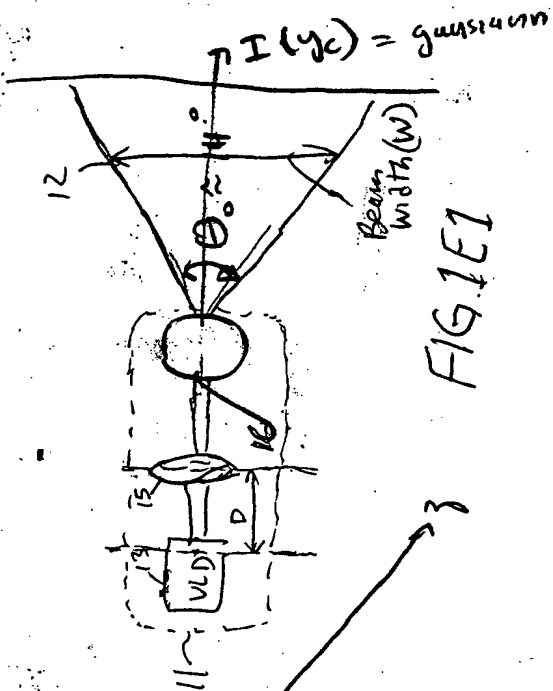


FIG. 1E1

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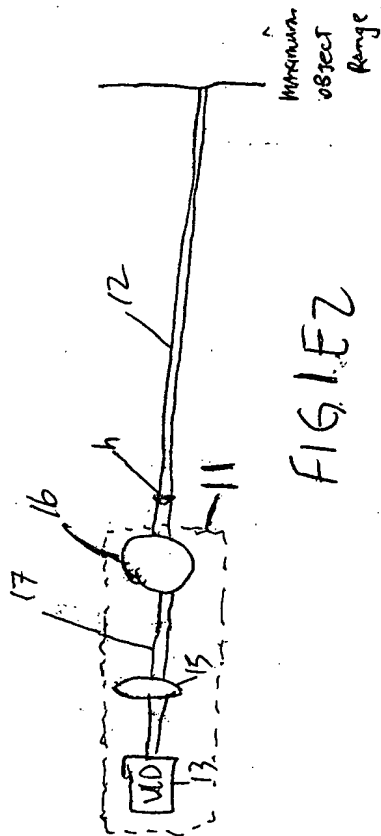


FIG. 1E2

SECRET

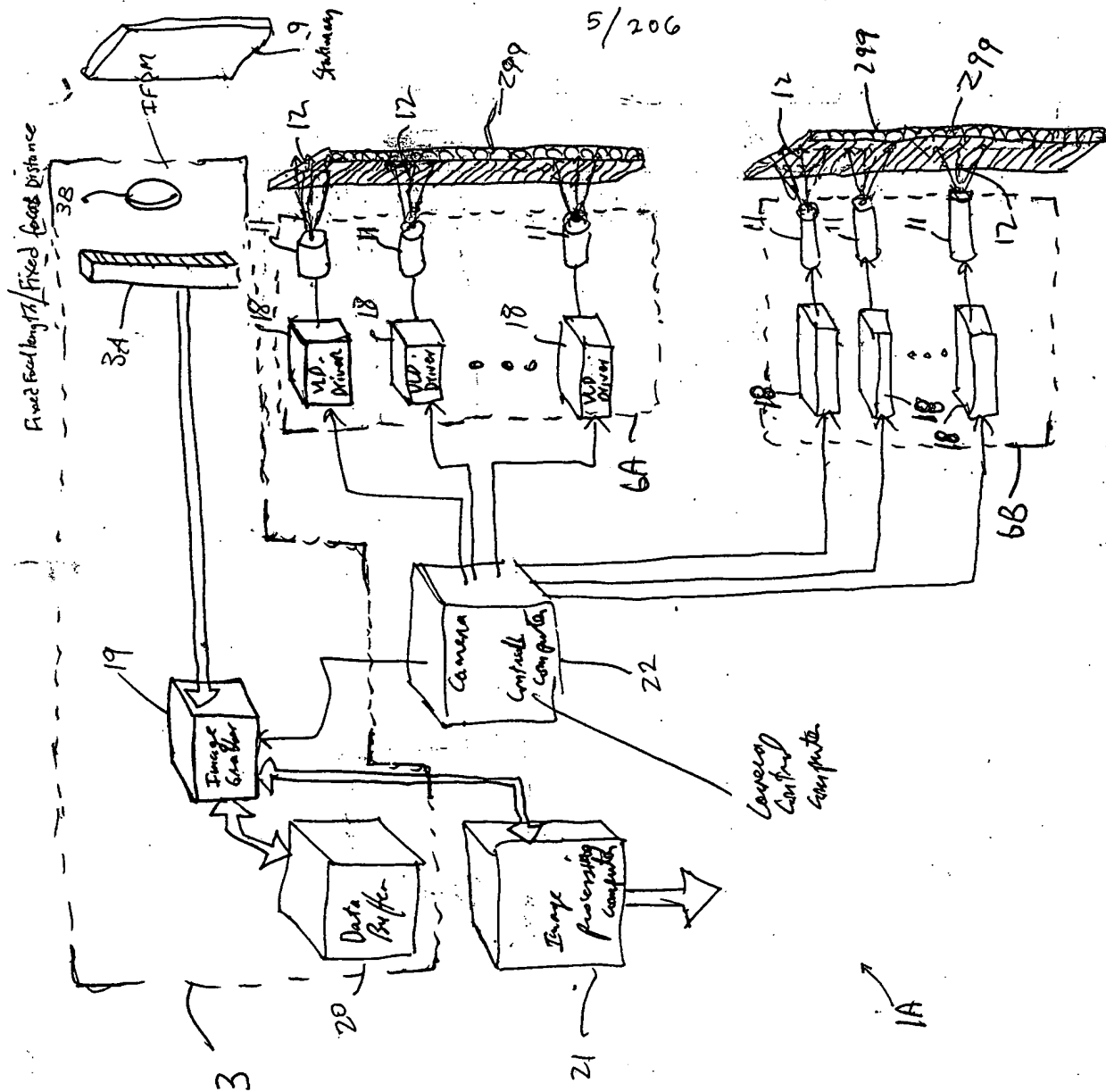
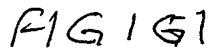


FIG. 1F

SECRET



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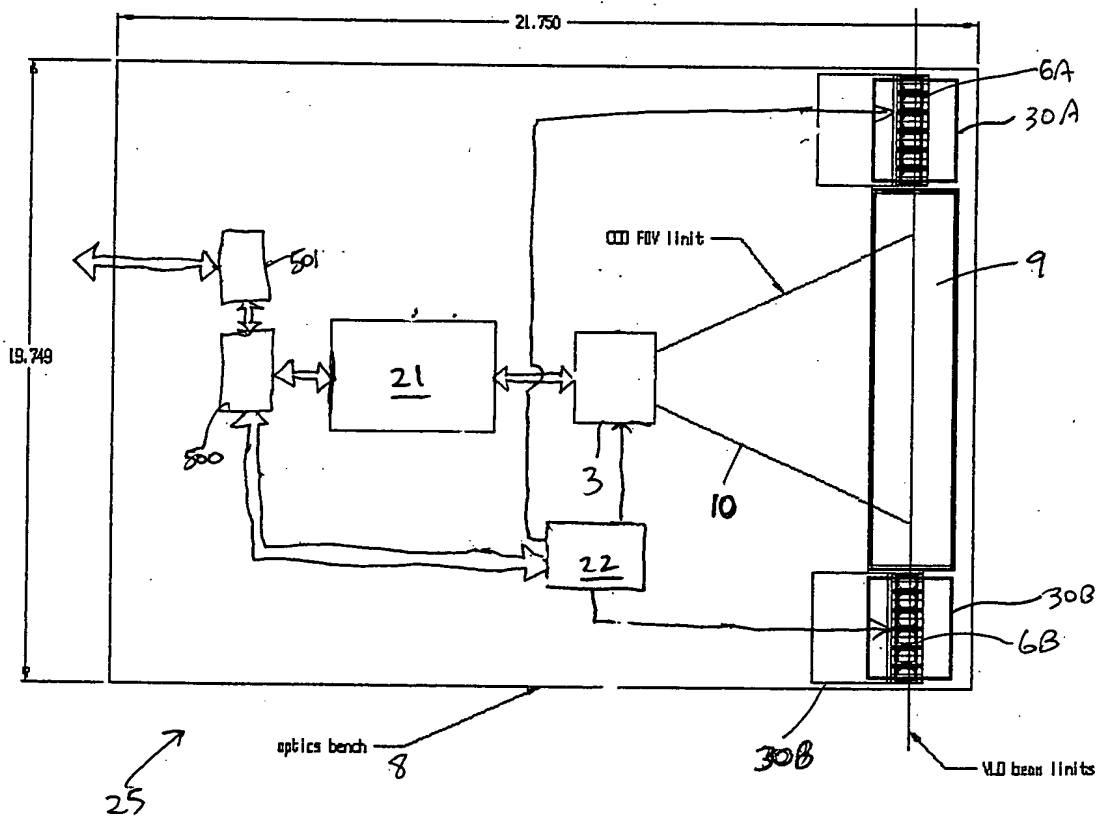


FIG. 142

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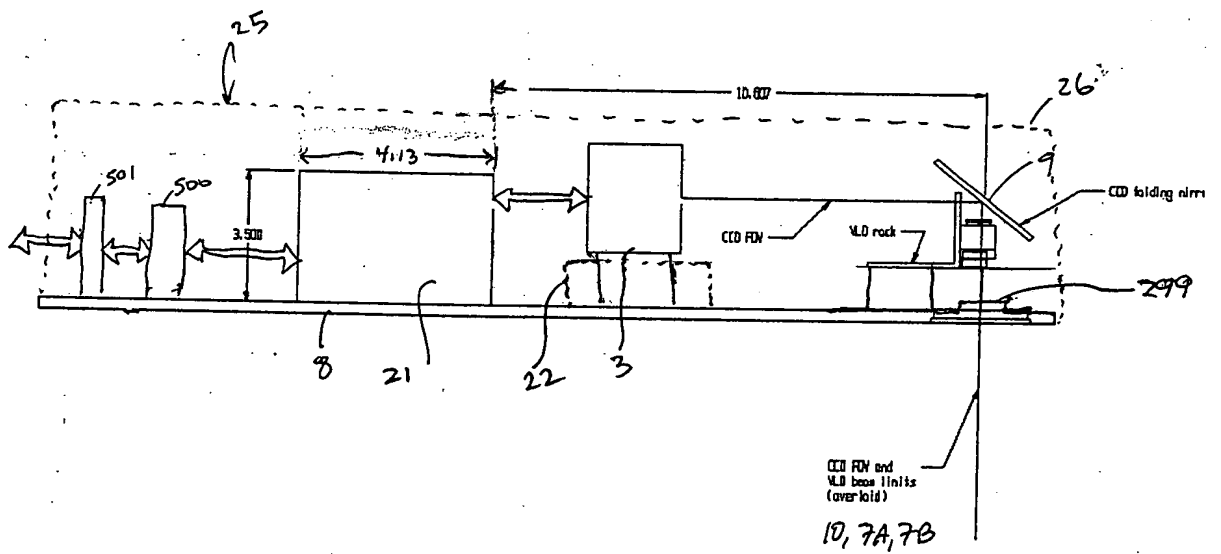
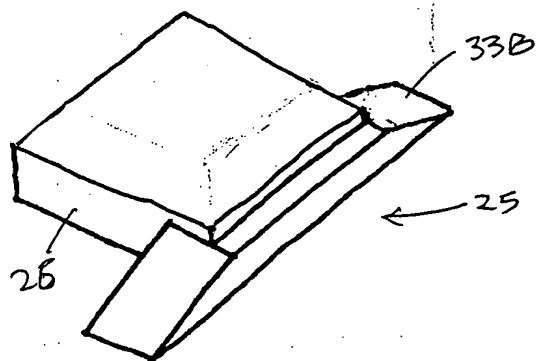
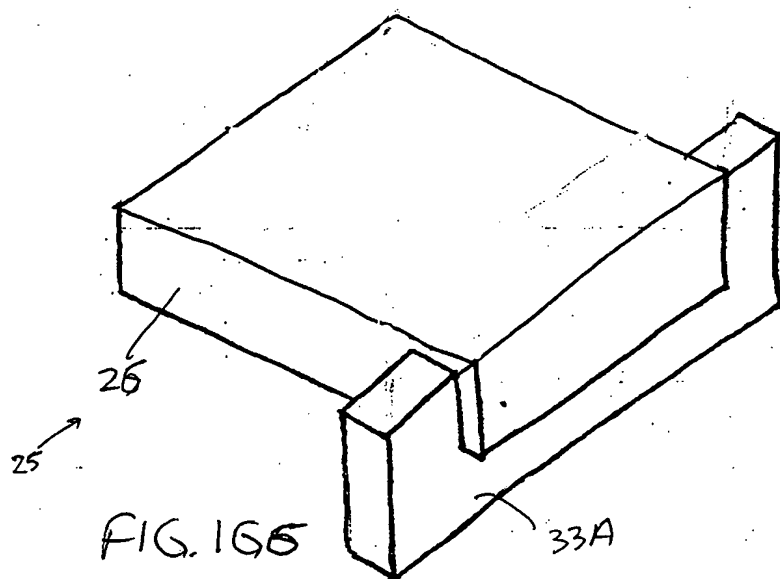


FIG. 164

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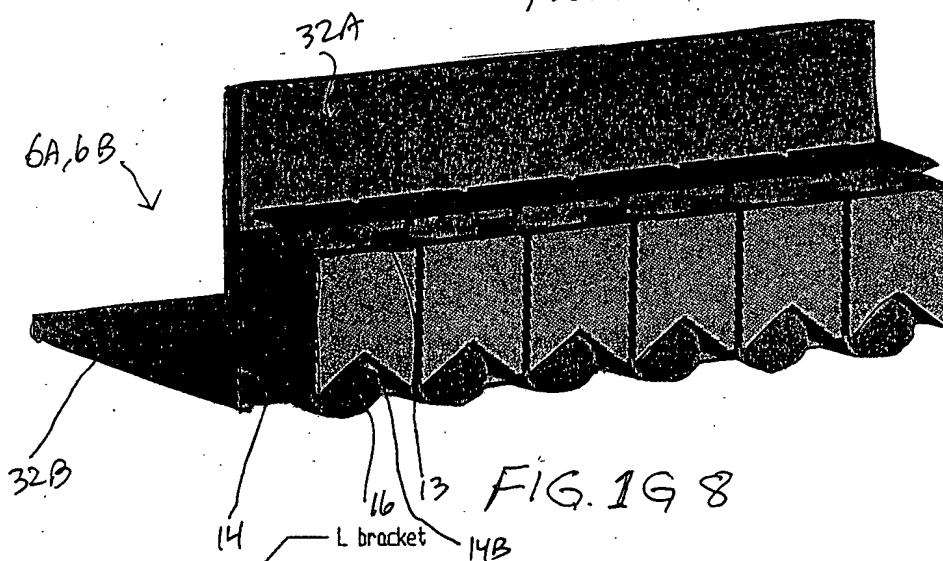


FIG. 1G 8

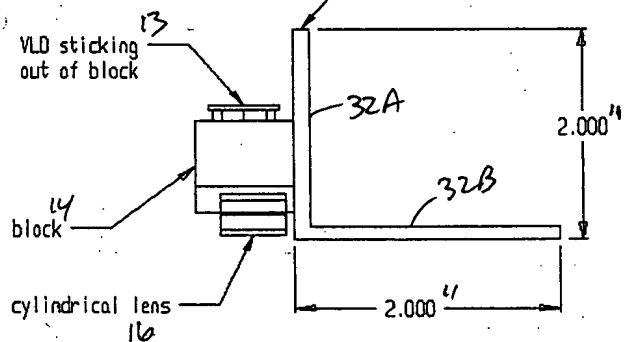


FIG. 1G 9

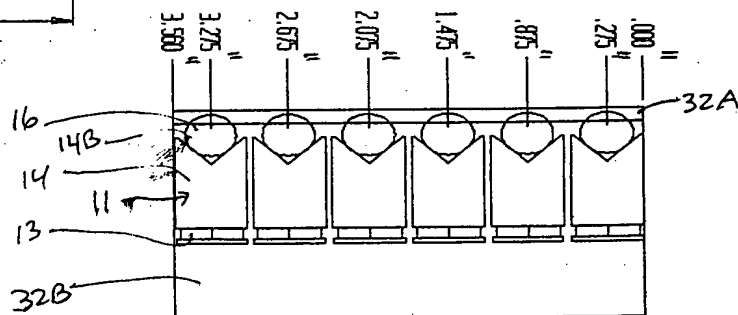
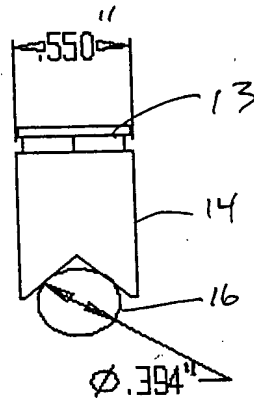
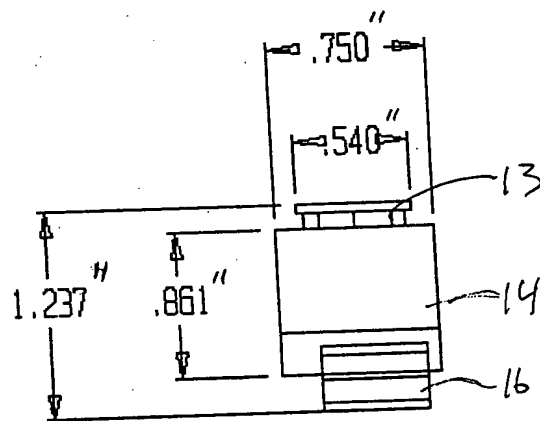


FIG. 1G 10

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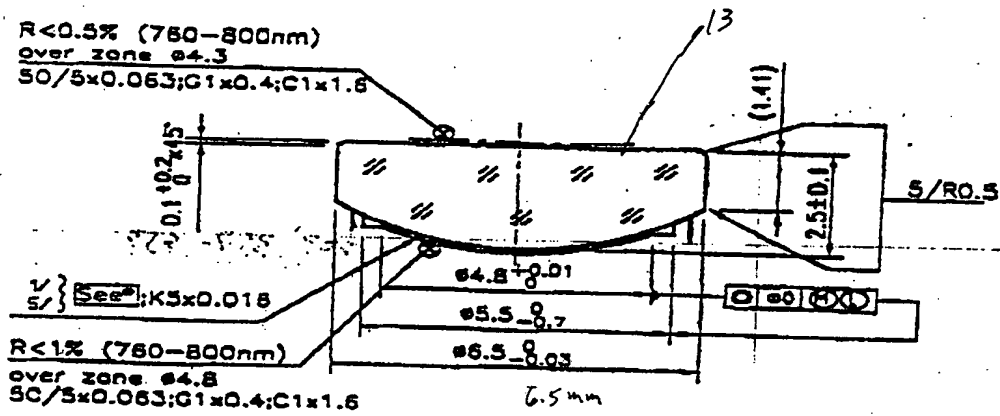


FIG. 1G13

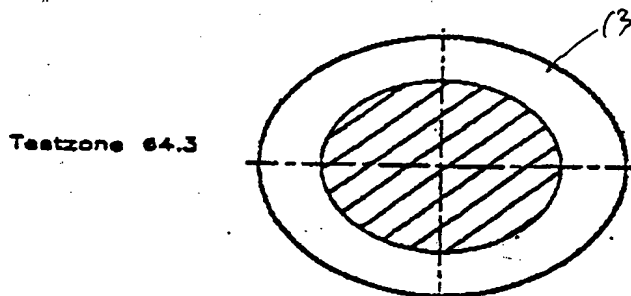


FIG. 1G14

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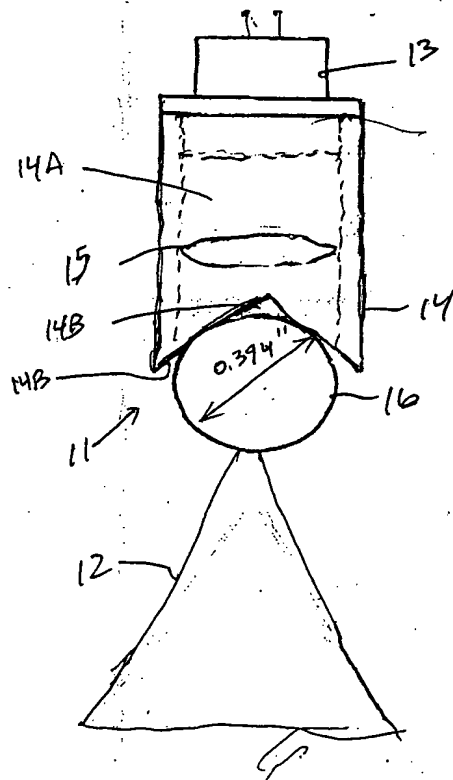


FIG. 1G15A

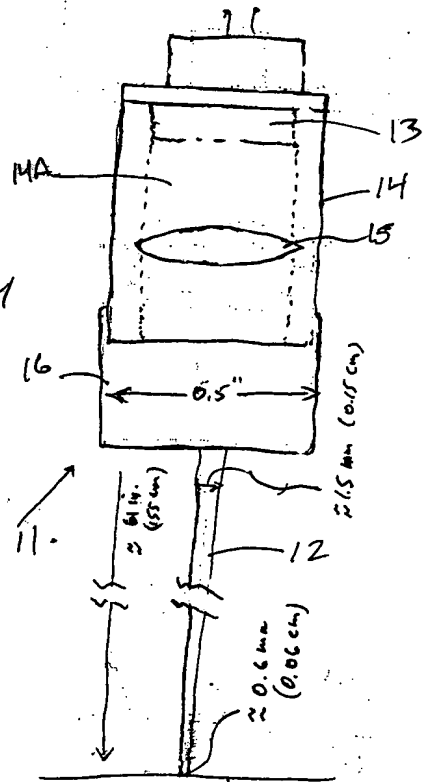


FIG. 1G15B

furthest
object/working
distance

A diagram illustrating the focusing of light by a thin lens. A horizontal dashed line represents the optical axis. On the left, a point labeled 'source' emits two rays. The upper ray is parallel to the optical axis and passes through a point on the lens. The lower ray passes through the optical center of the lens. The distance from the source to the lens is labeled r_0 . On the right, the two rays converge at a point labeled 'image'. The distance from the lens to the image is labeled r_i . The lens is represented by a vertical oval shape intersected by the optical axis.

FIG. 1H2

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FIG. 146

CCD-Based Scanner

FIRST GENERALIZED METHOD
of Reducing Speckle-Noise
PATTERNS AT IMAGE
Detection array of the
FFD Subsystem (3)

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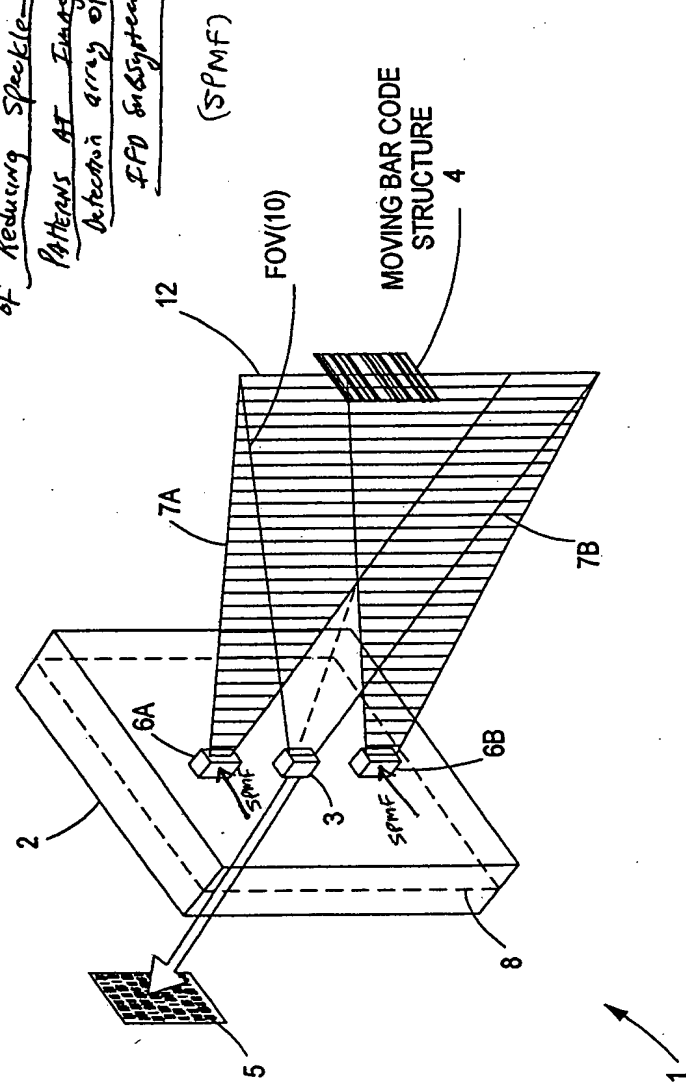


FIG. 1I1

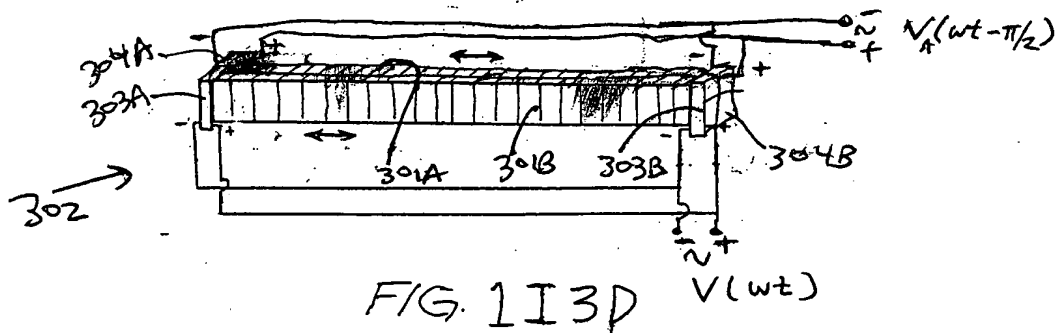
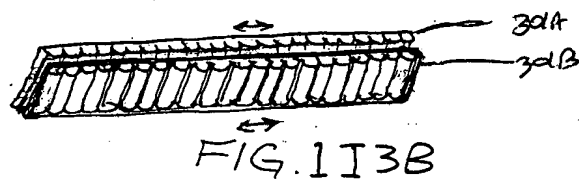
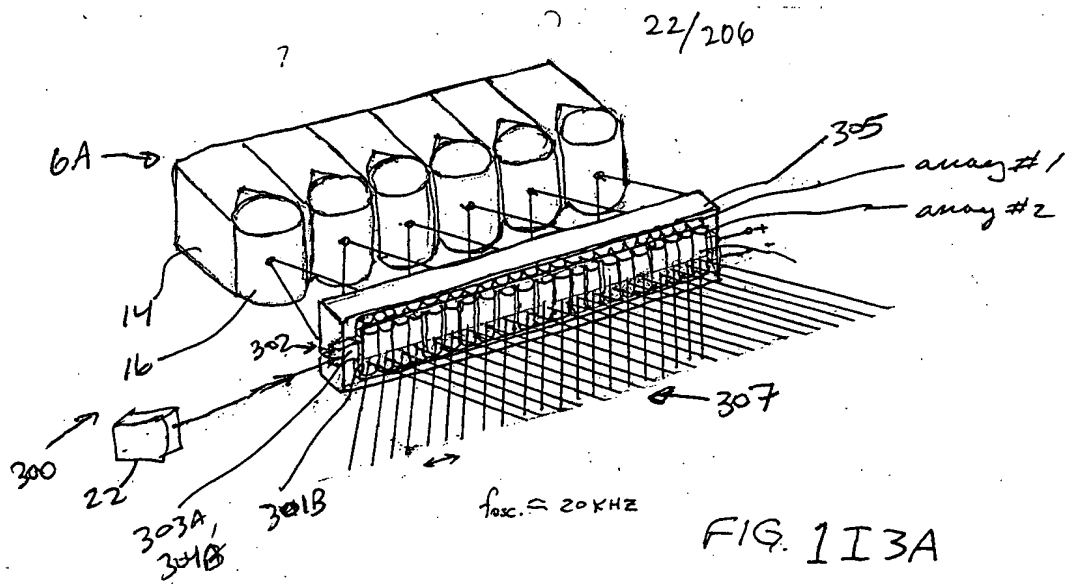
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The First Generalized Speckle-Noise Pattern Reduction Method
Of The Present Invention

Prior to illumination of the target with the planar laser illumination beam (PLIB), modulate the spatial phase of the transmitted PLIB along the planar extent thereof according to a spatial phase modulation function (SPMF) so as to modulate the phase along the wavefront of the transmitted PLIB and produce numerous substantially different time-varying speckle-noise patterns at the image detection array of the IFD Subsystem during the photo-integration time period thereof.

Temporally average the numerous substantially different time-varying speckle-noise patterns produced at the image detection array in the IFD Subsystem during the photo-integration time period thereof, so as to thereby reduce the power of the speckle-noise pattern observed at the image detection array.

FIG. 1I2B



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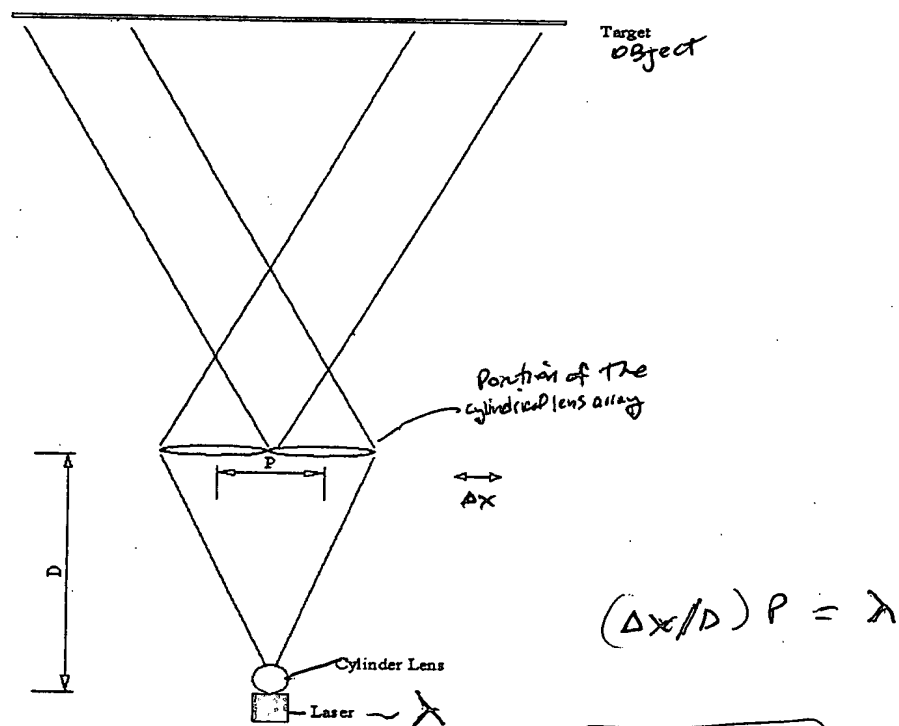
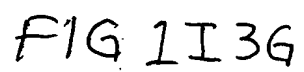
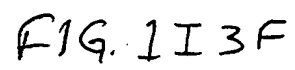


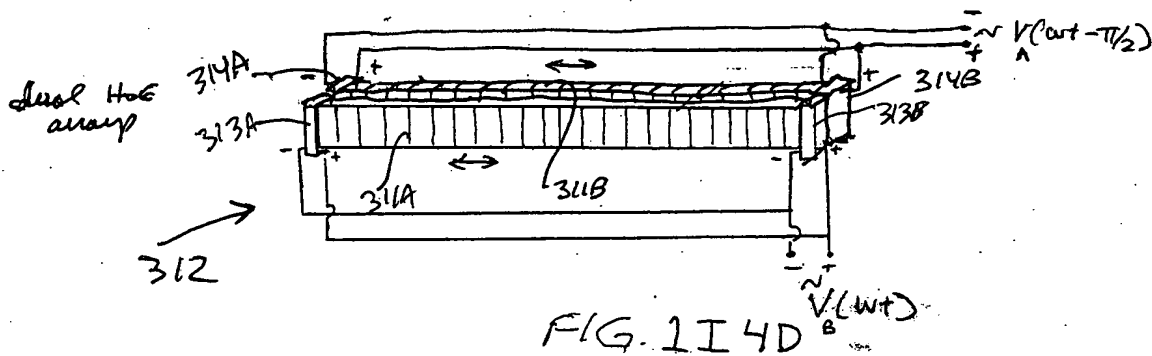
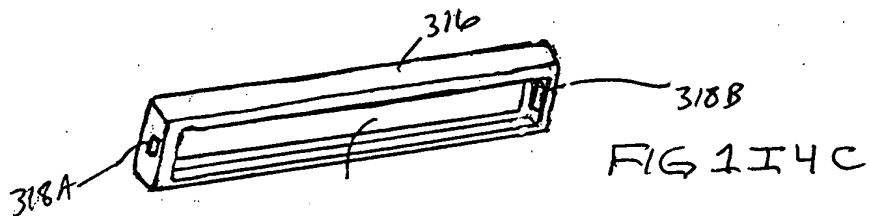
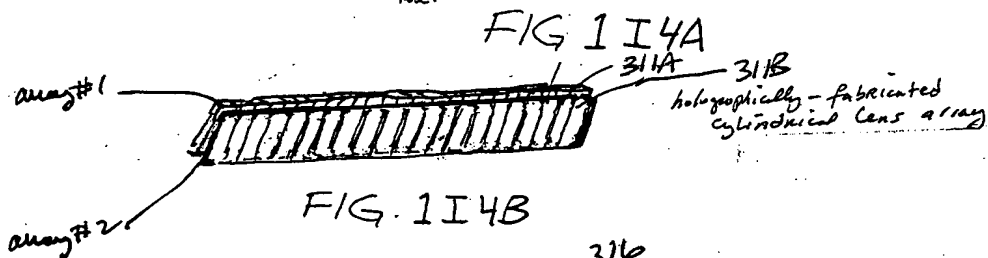
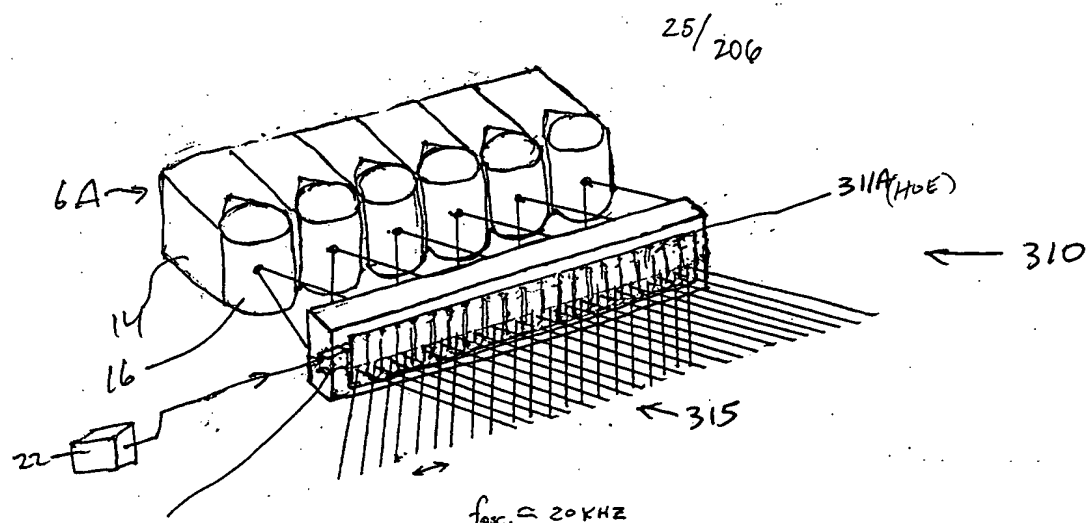
Figure 1

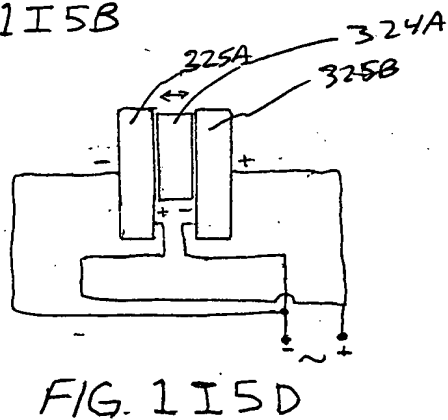
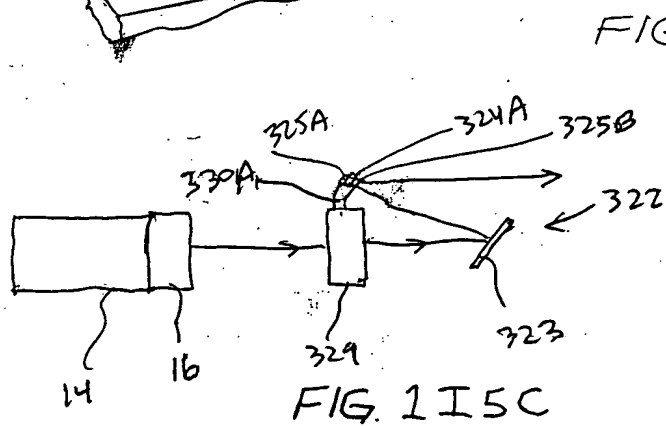
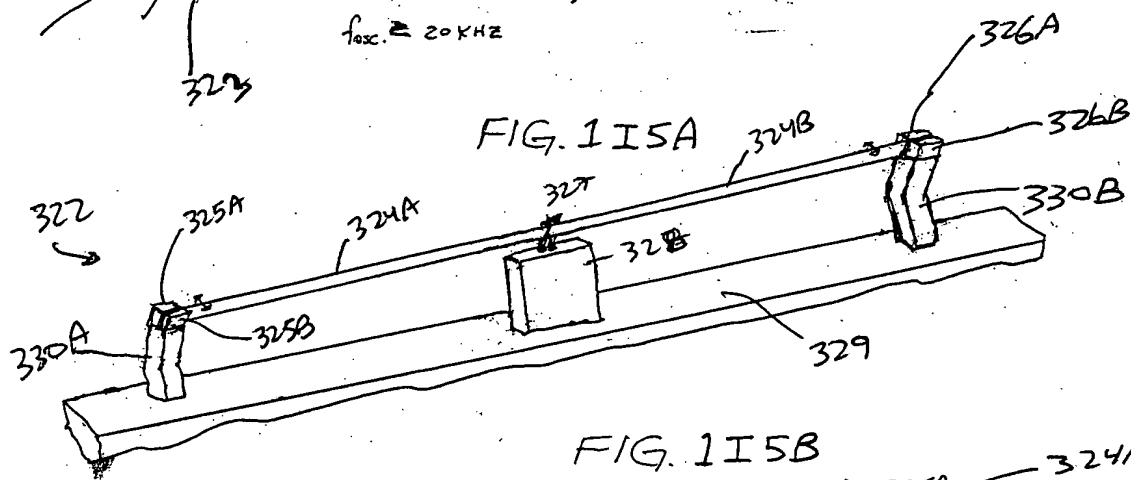
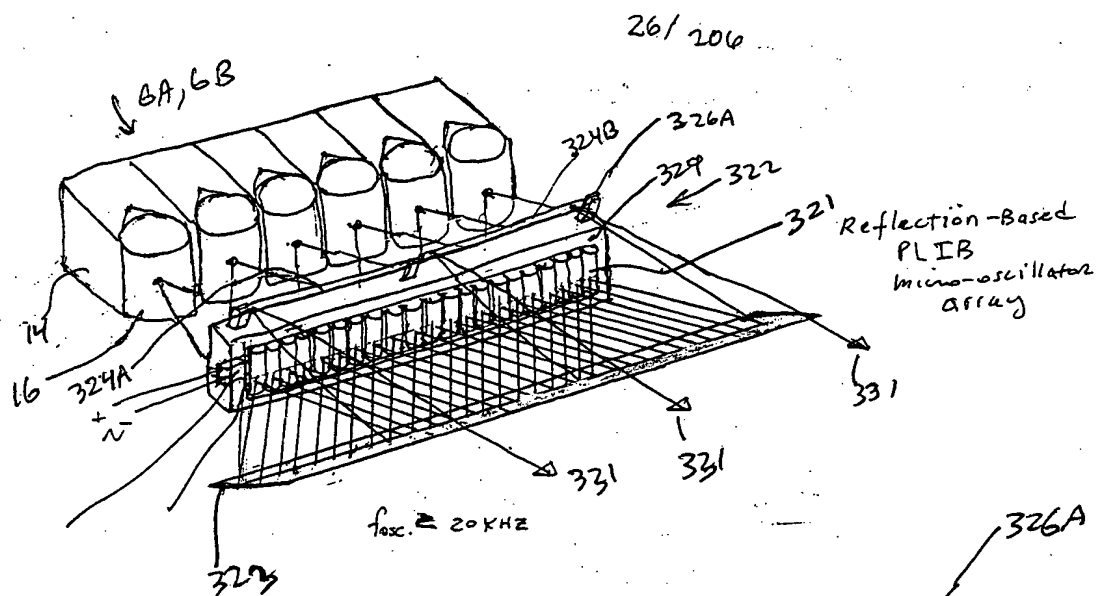
$$\Delta x \geq \frac{\lambda}{P} \cdot D$$

FIG. 1I3E

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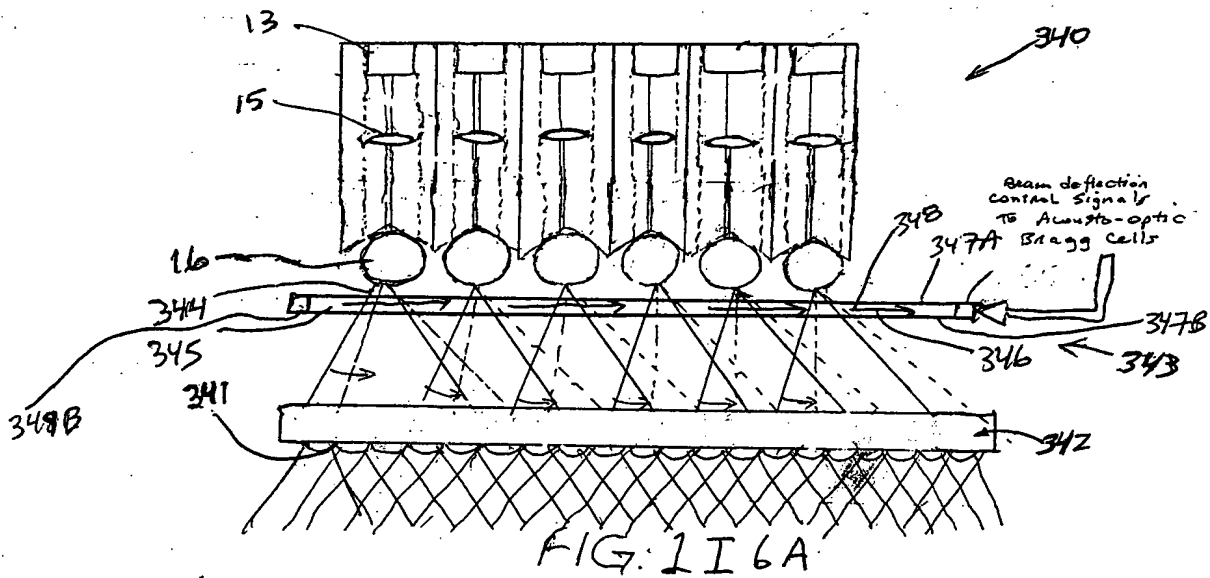
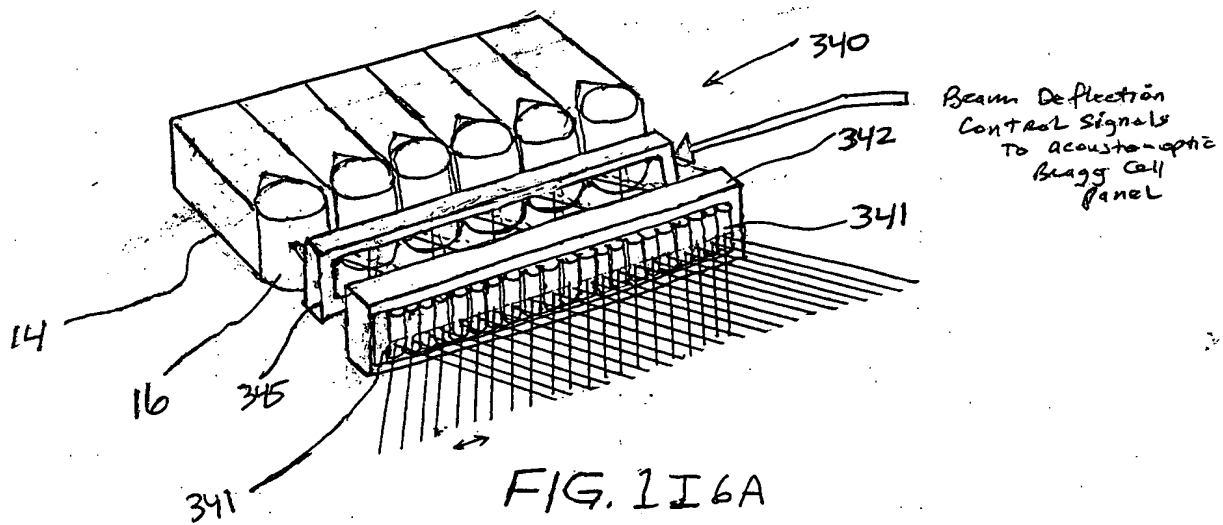






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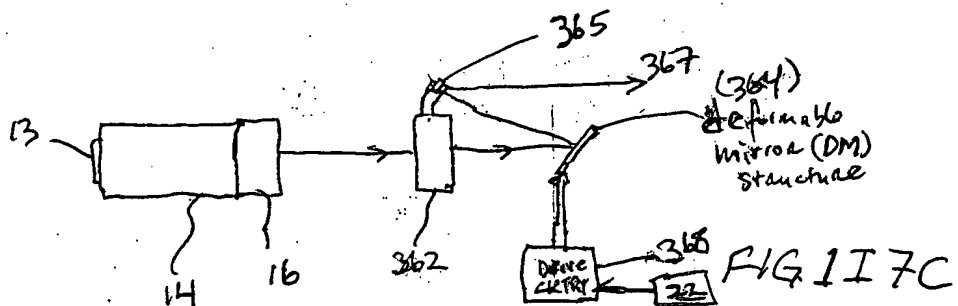
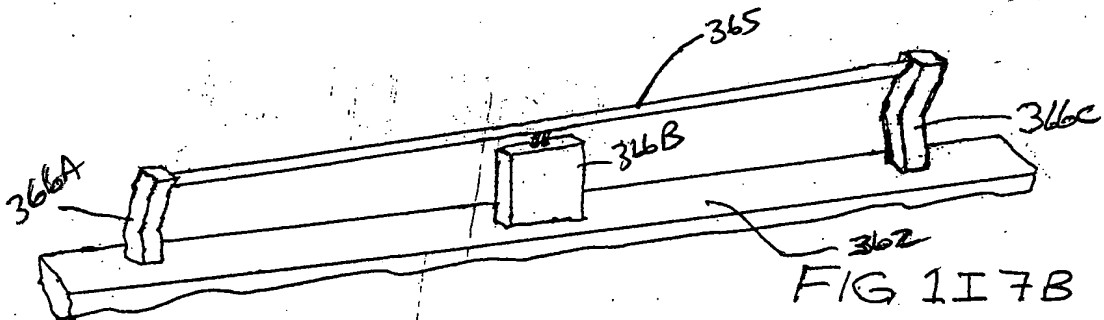
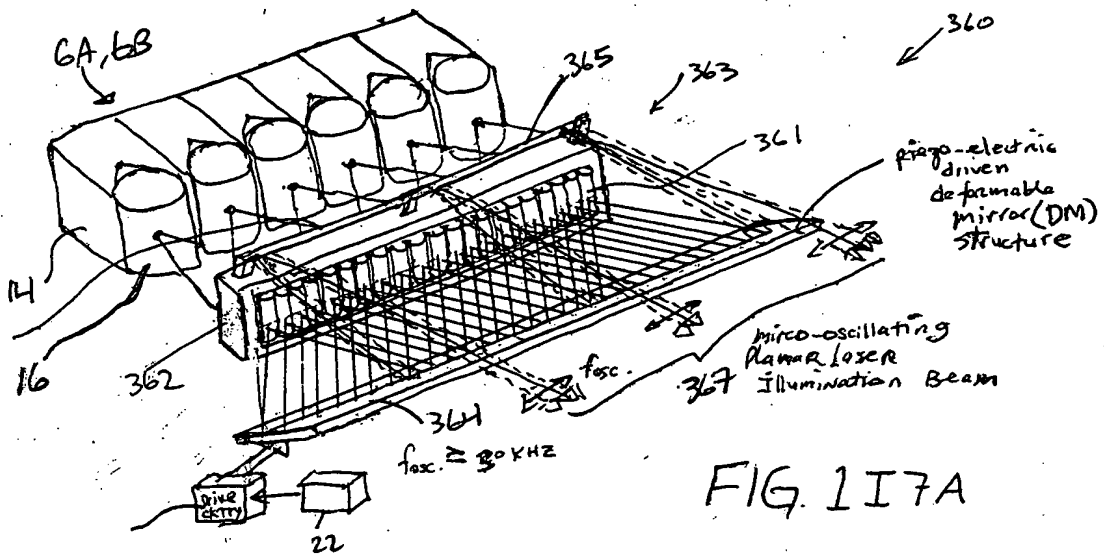


FIG. 118A

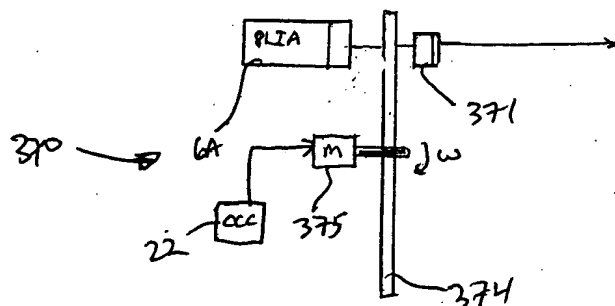


FIG. 118B

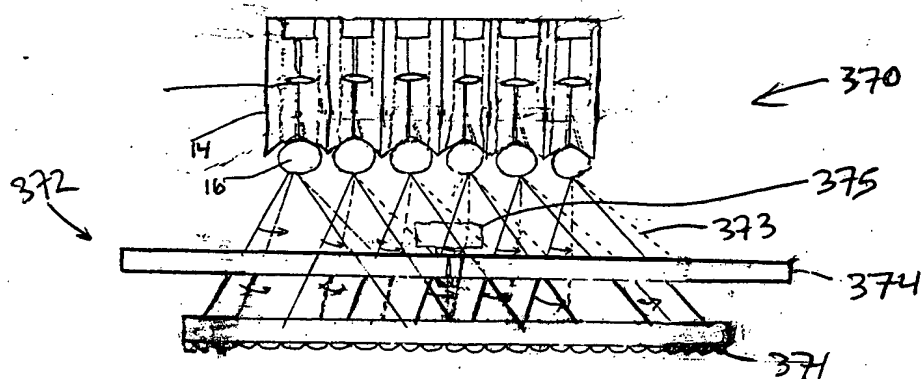


FIG. 1I8C

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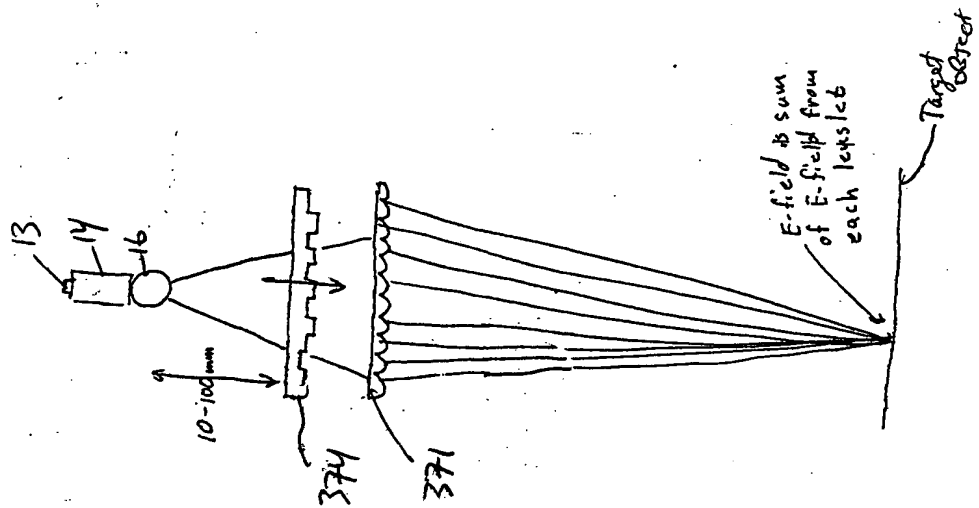


FIG 118E

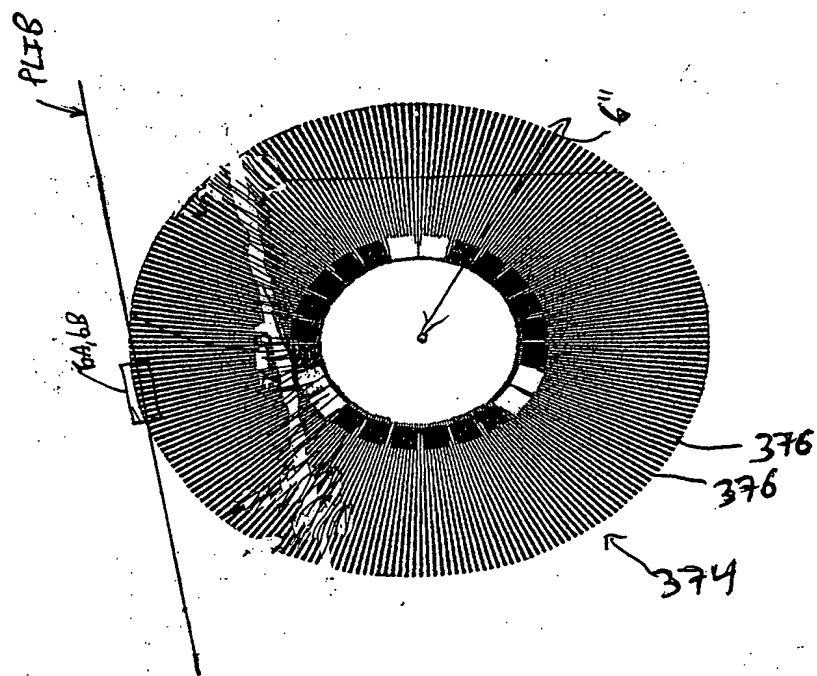
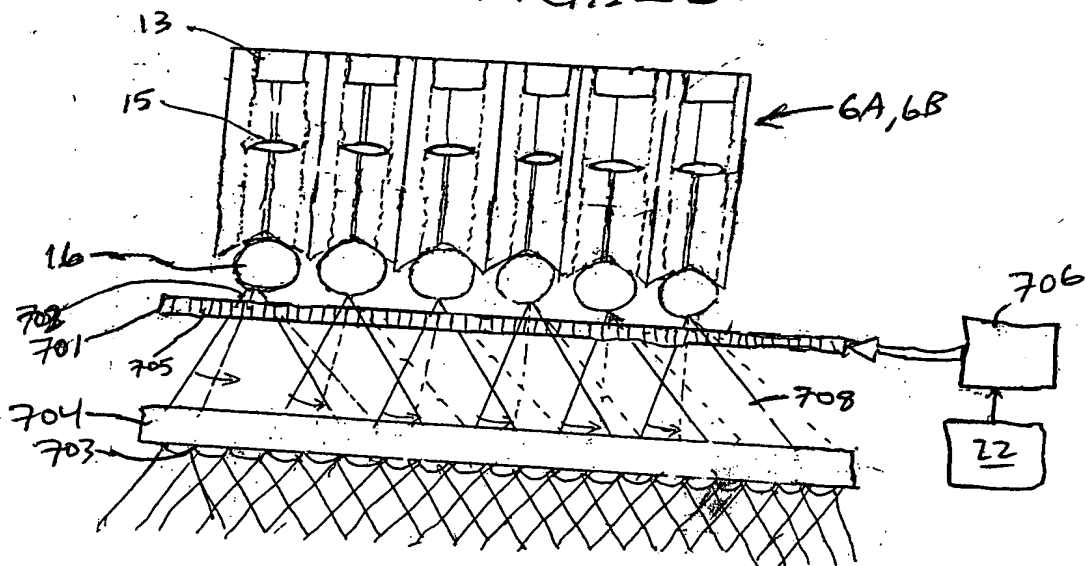
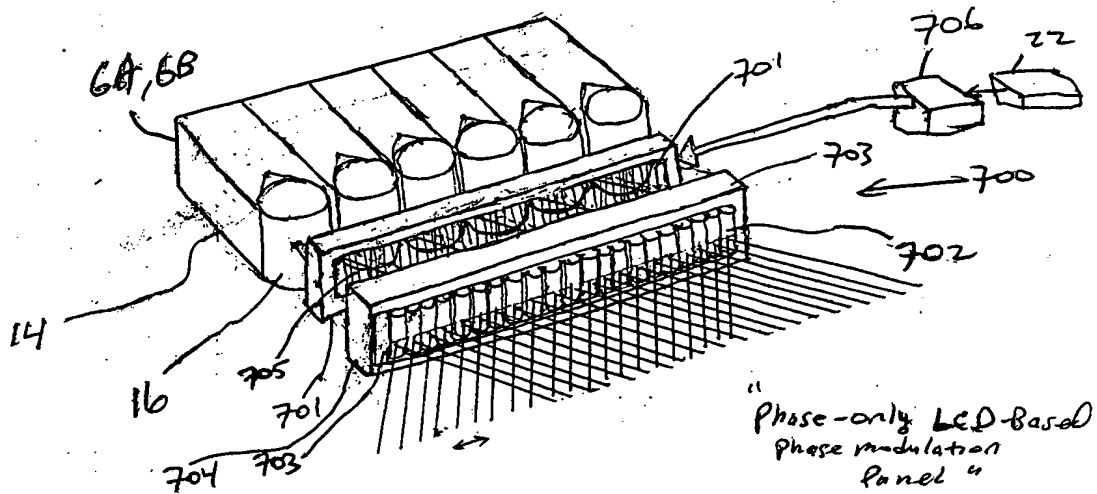


FIG 118D

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[illegible]

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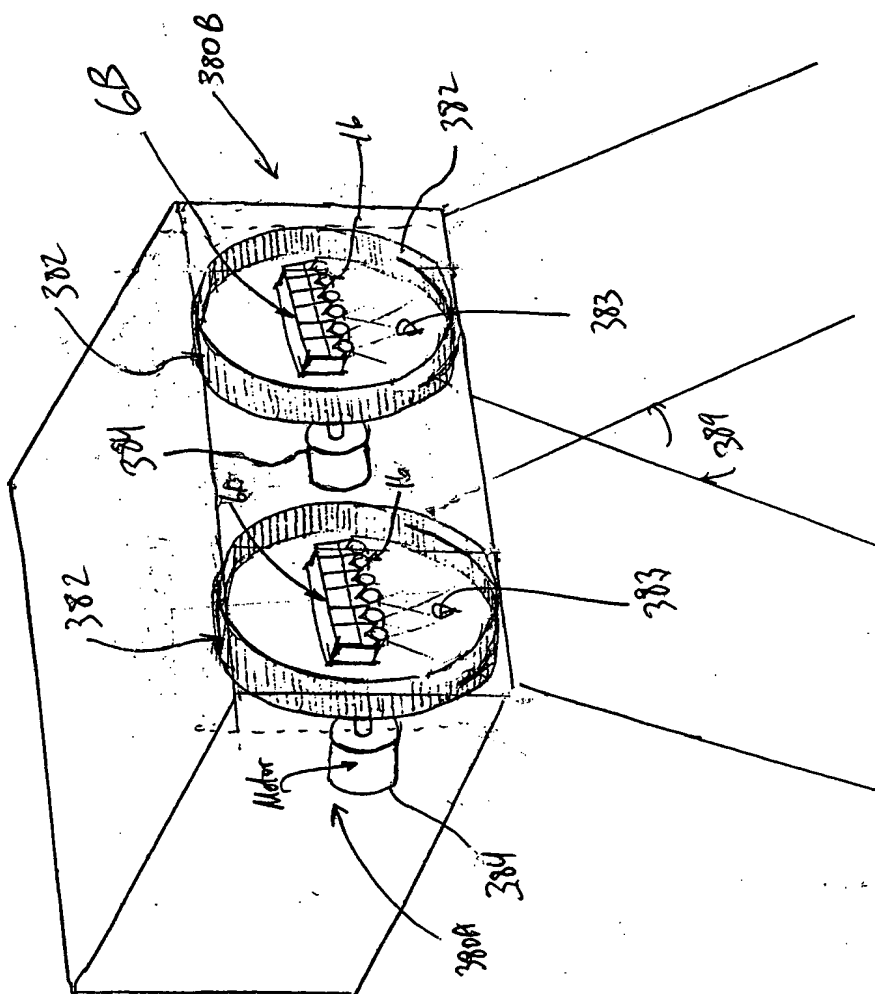
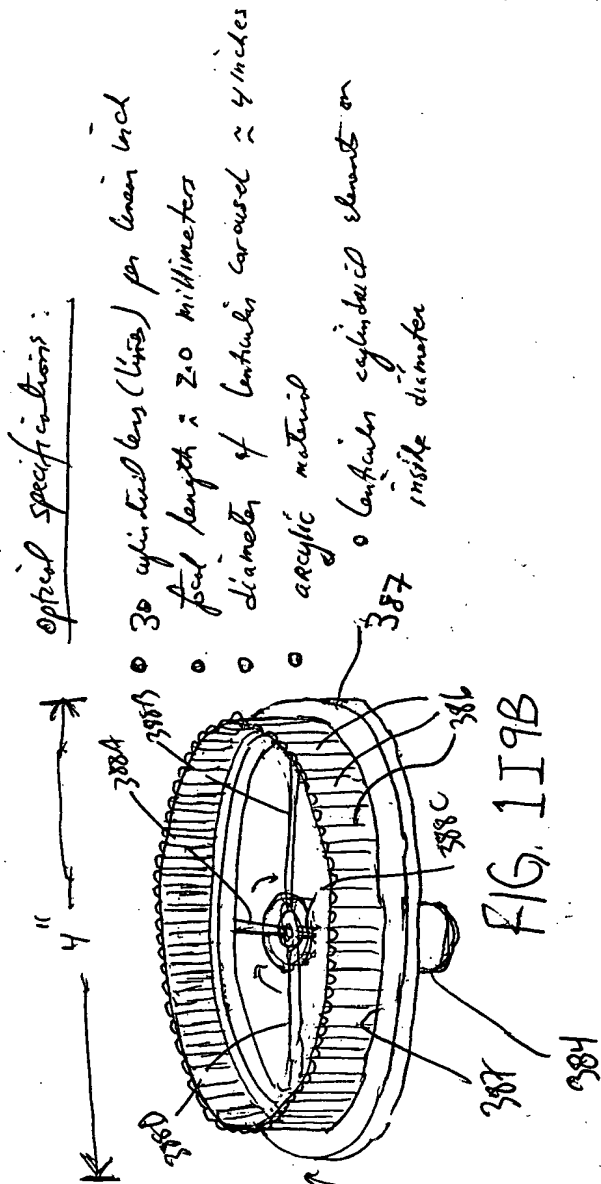


FIG. 1I 9A

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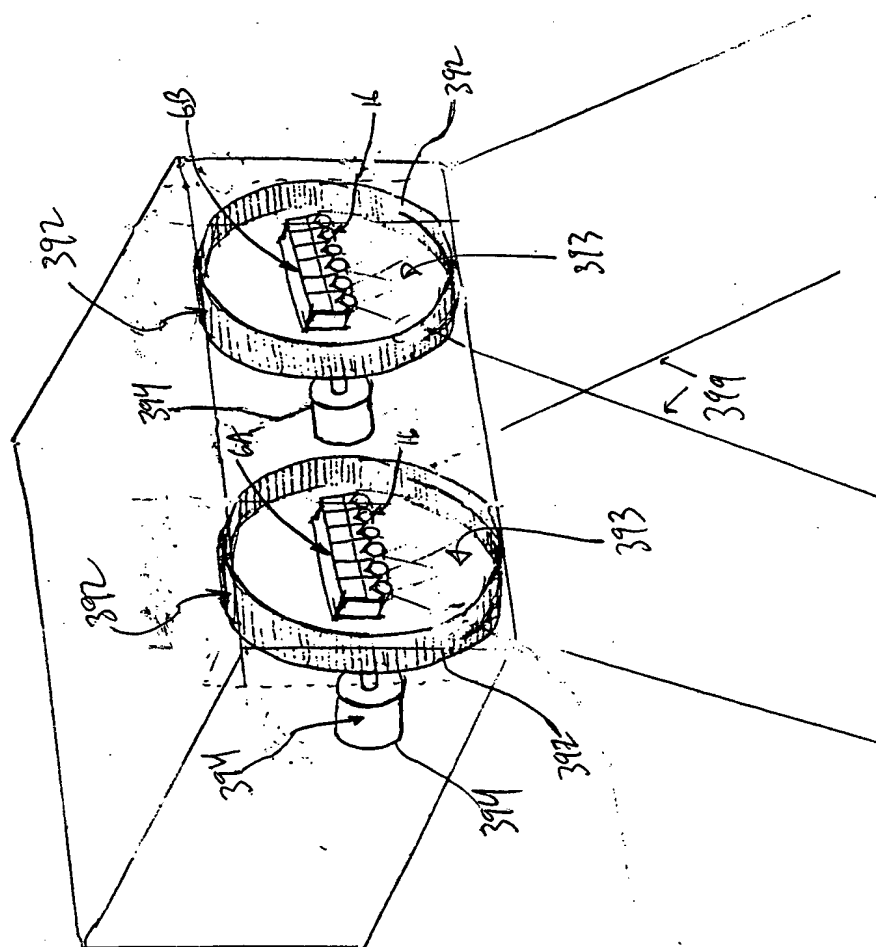
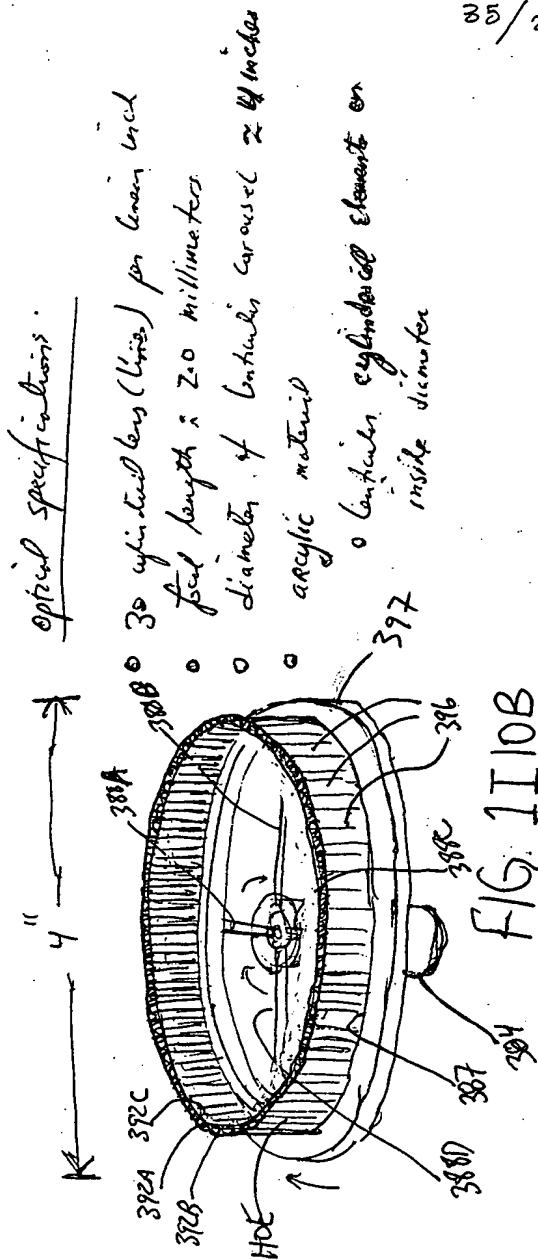


FIG. 110A



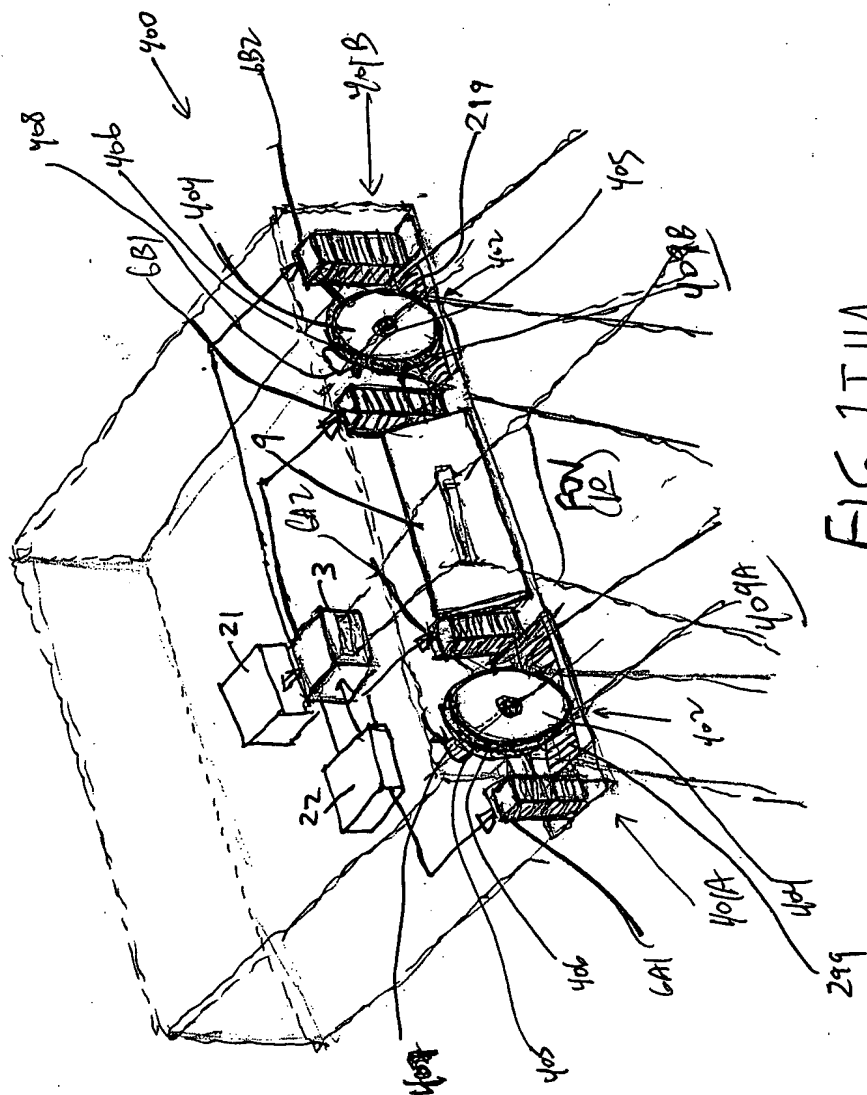


FIG. 111A

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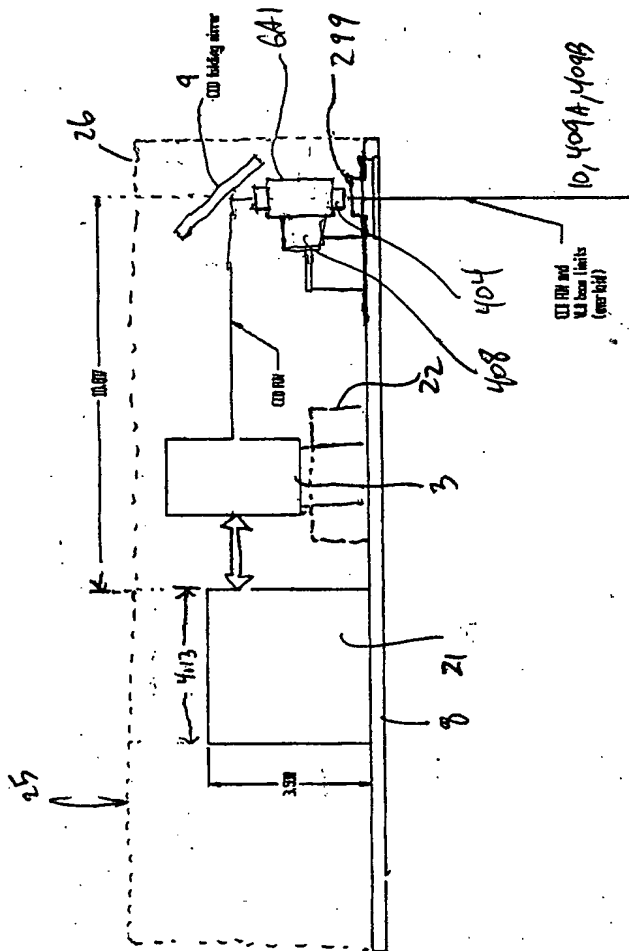


FIG 111B

Second Generalized Method of
Reducing Speckle-Noise Patterns
at Image Detection Array
of the FFD Subsystem (3)

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(TIME)

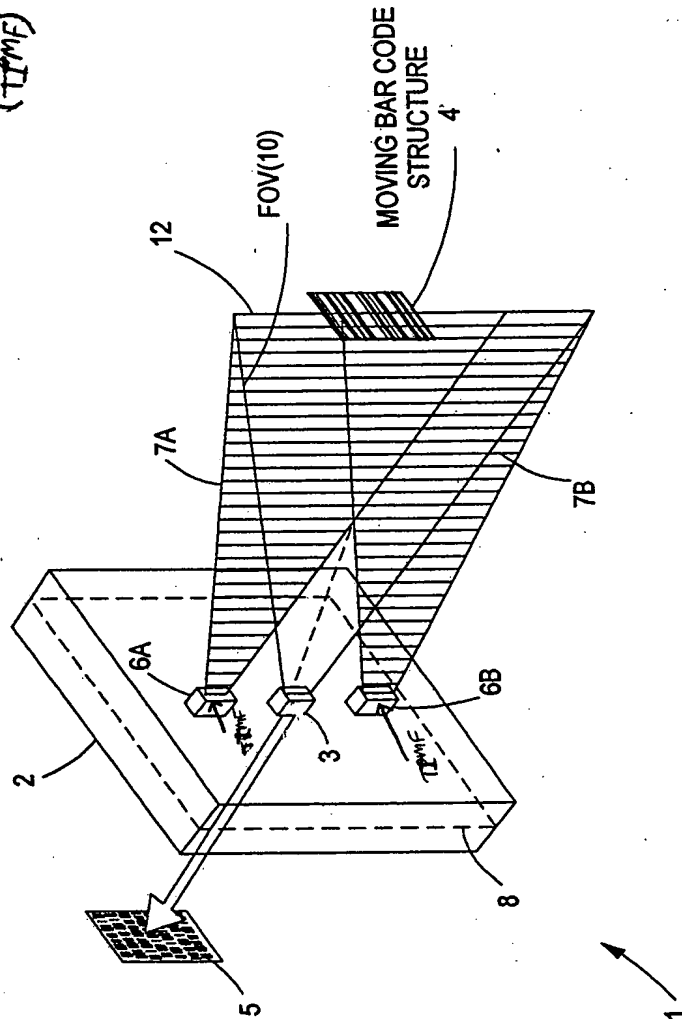


FIG. 1 I/2

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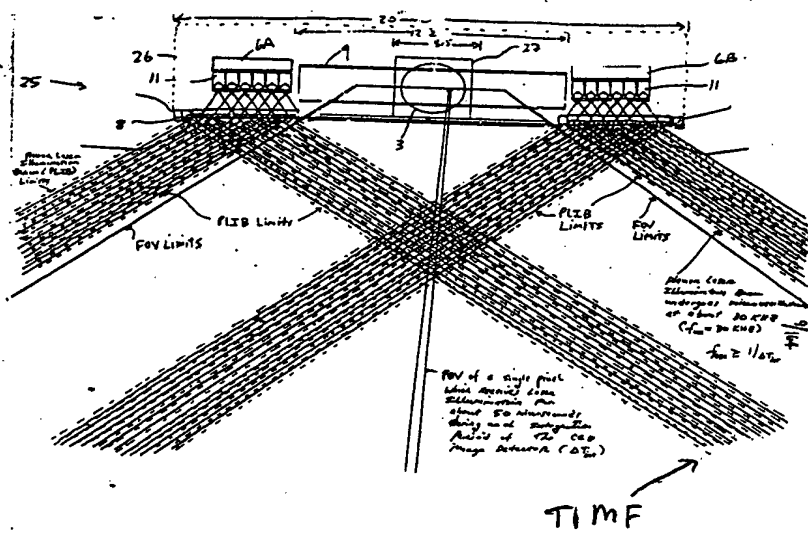


FIG. 1 I 13A

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The Second Generalized Speckle-Noise Pattern Reduction Method
Of The Present Invention

Prior to illumination of the target with the planar laser illumination beam (PLIB), modulate the temporal intensity of the transmitted PLIB along the planar extent thereof according to a temporal intensity modulation function (TIMF) so as to modulate the phase along the wavefront of the transmitted PLIB and produce numerous substantially different time-varying speckle-noise patterns at the image detection array of the IFD Subsystem during the photo-integration time period thereof.

↓

Temporally average the numerous substantially different time-varying speckle-noise patterns produced at the image detection array in the IFD Subsystem during the photo-integration time period thereof, so as to thereby reduce power of the speckle-noise pattern observed at the image detection array.

FIG. 1I13B

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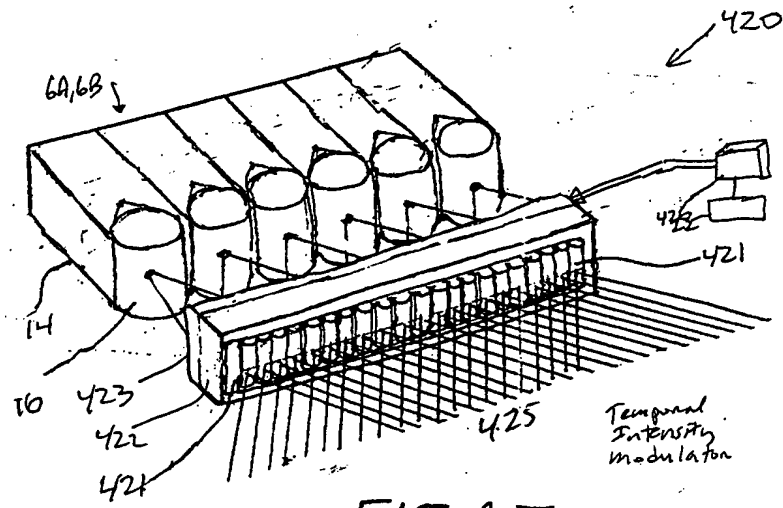


FIG. 1I14A

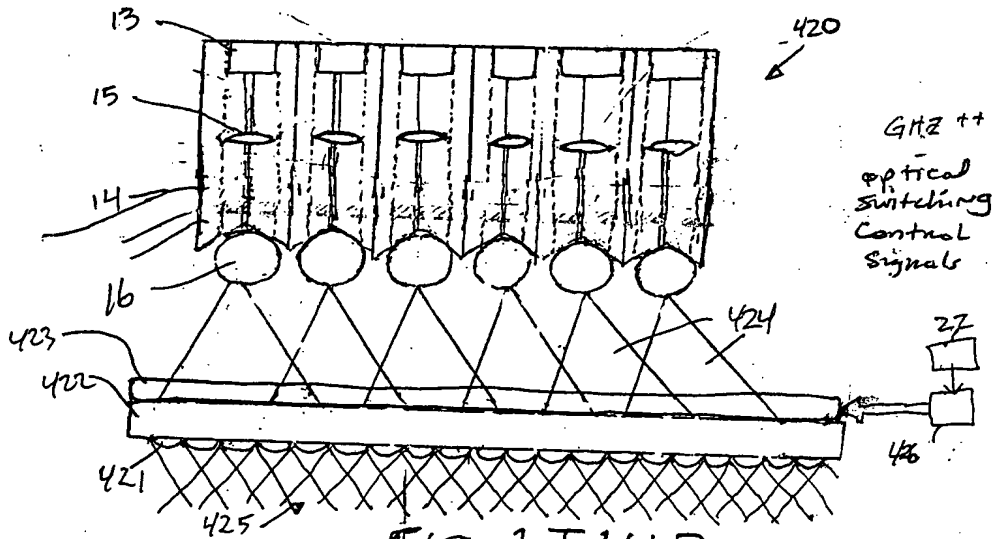


FIG. 1I14B

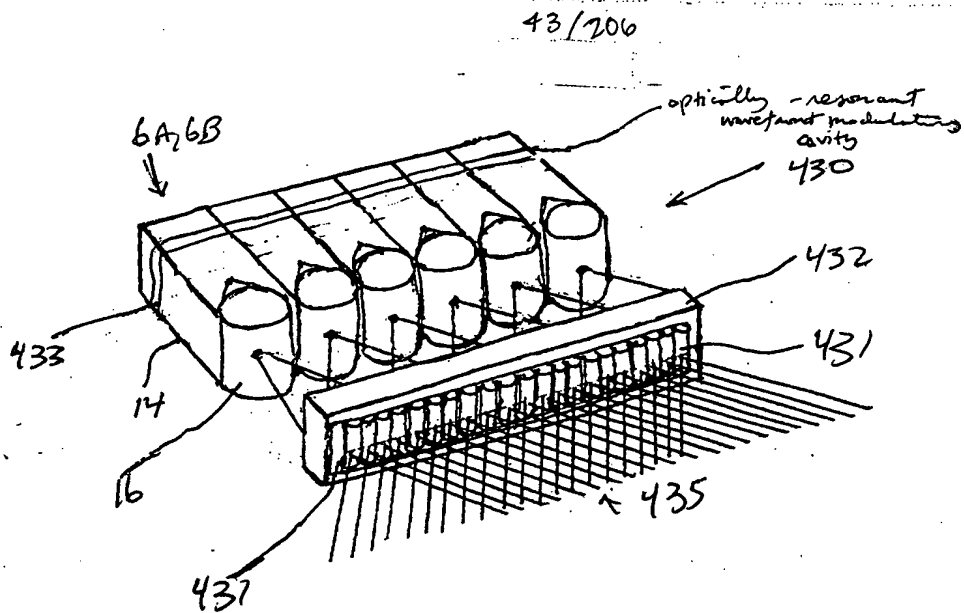


FIG. 1I15A

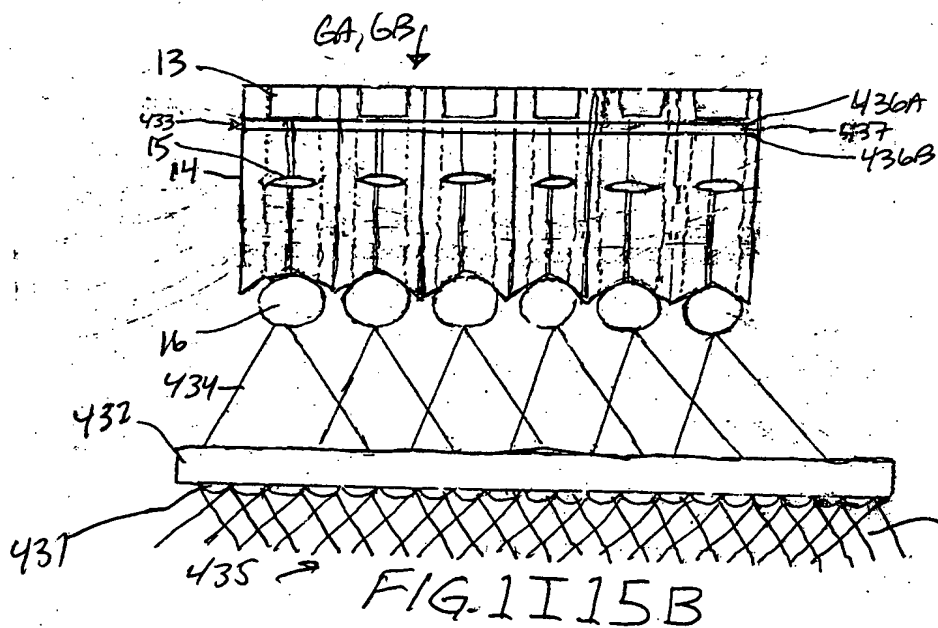
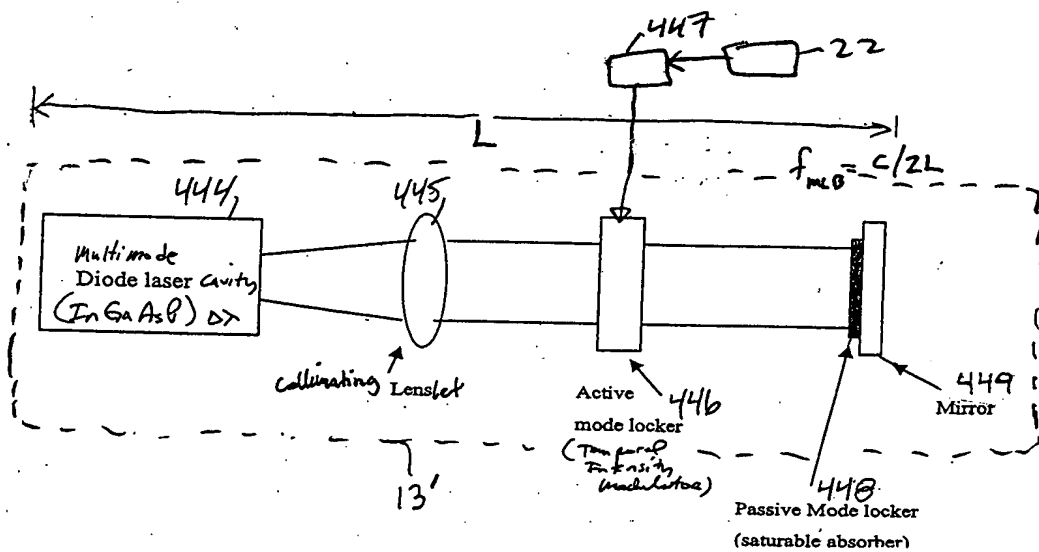
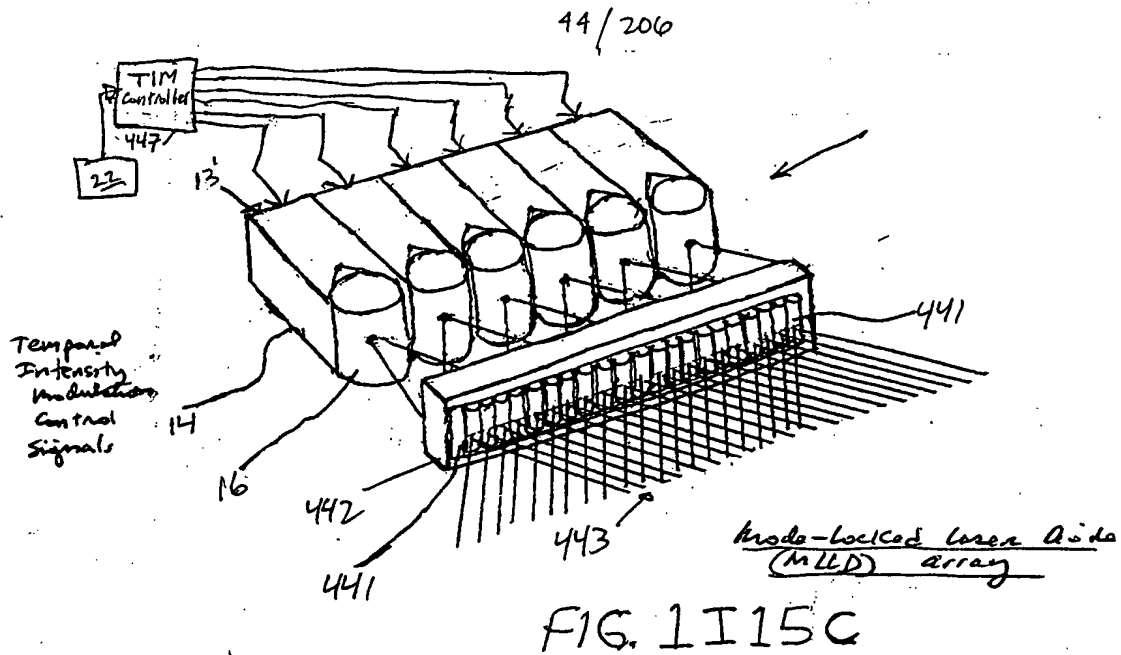
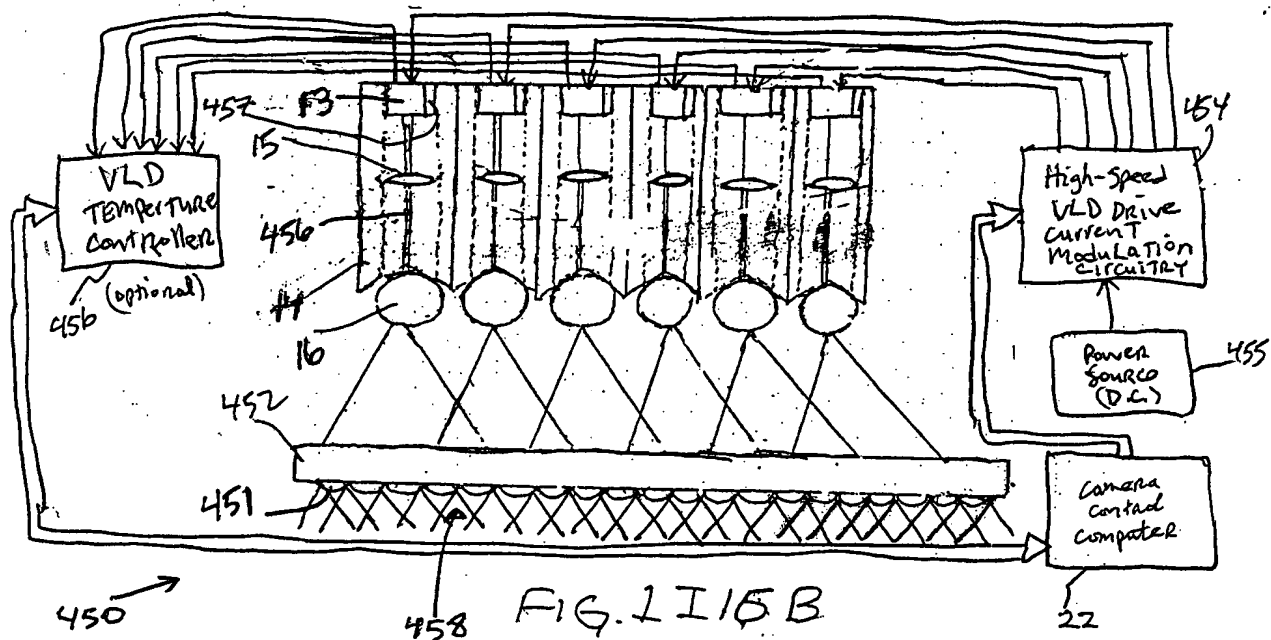
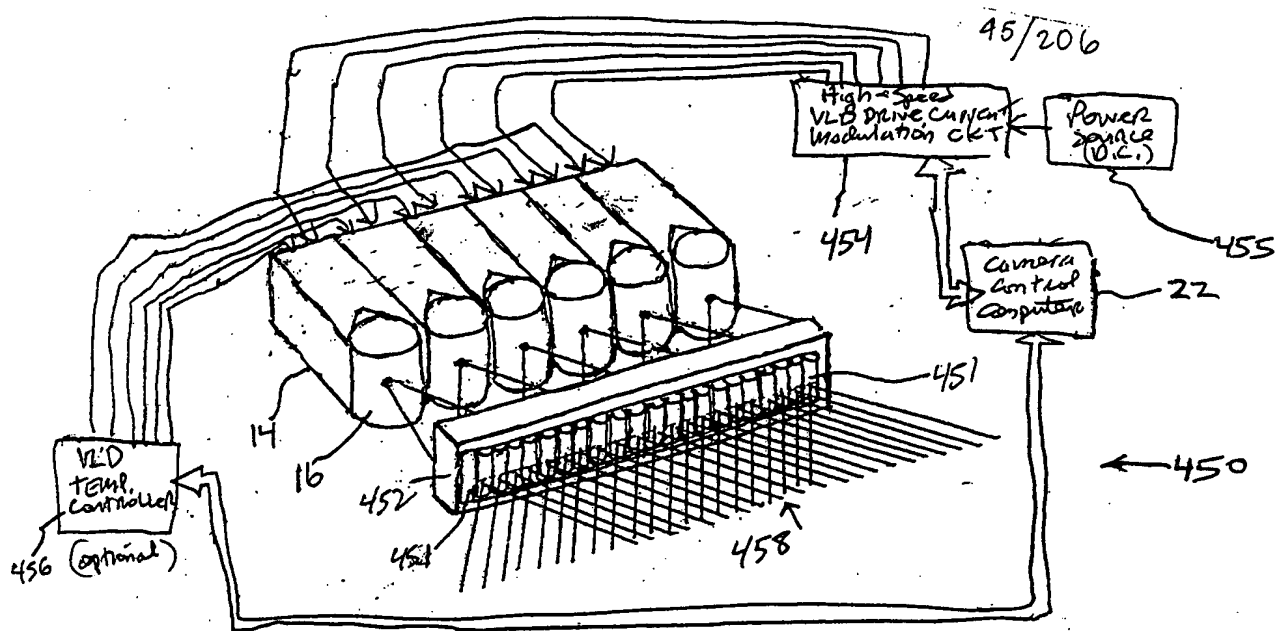


FIG. 1I15B





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Third Generalized Method
of Reducing Speckle-Noise
Patterns AT Image
Detection array of the
FPD Subsystem (3)

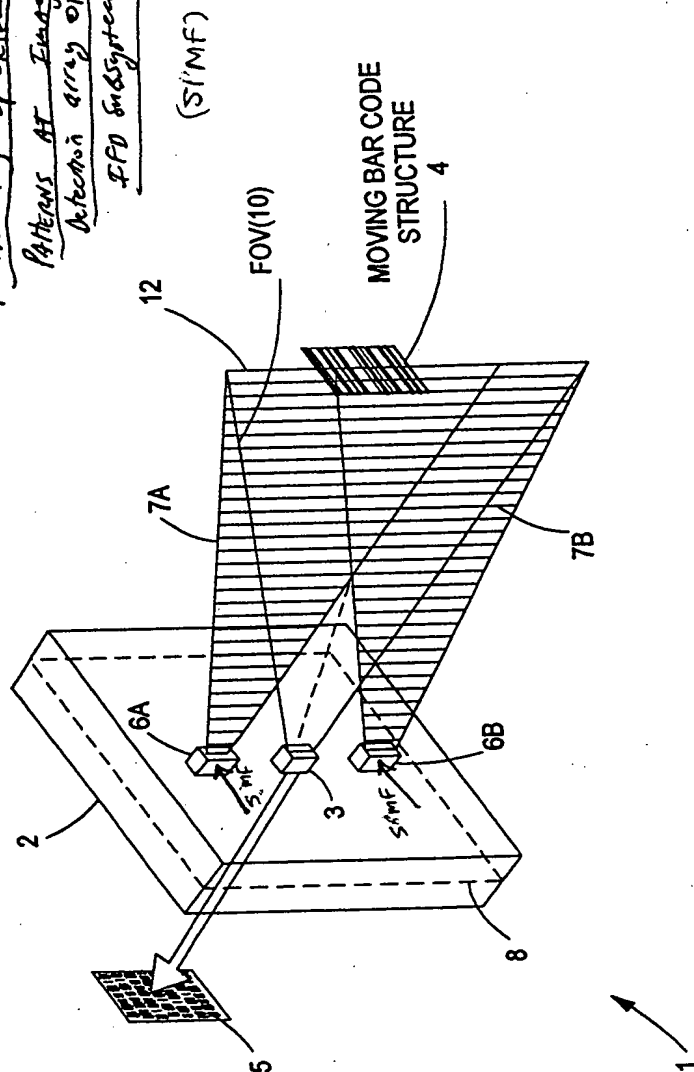
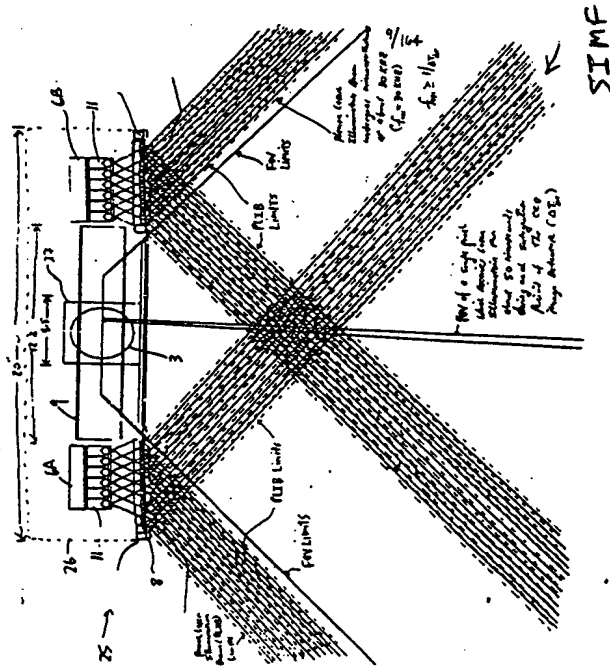


FIG. 17

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Limit to object illumination

FIG. 1I 18A

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The Third Generalized Speckle-Noise Pattern Reduction Method
Of The Present Invention

Prior to illumination of the target with the planar laser illumination beam (PLIB), modulate the spatial intensity of the transmitted PLIB along the planar extent thereof according to a spatial intensity modulation function (SIMF) so as to modulate the phase along the wavefront of the transmitted PLIB and produce numerous substantially different time-varying speckle-noise patterns at the image detection array of the IFD Subsystem during the photo-integration time period thereof.

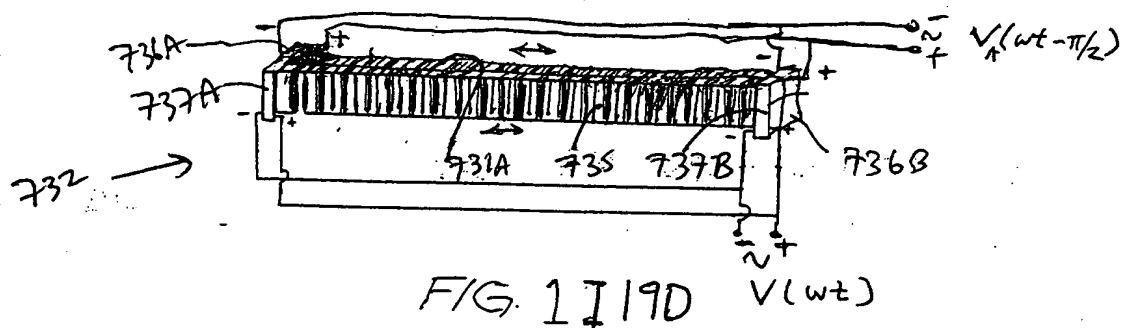
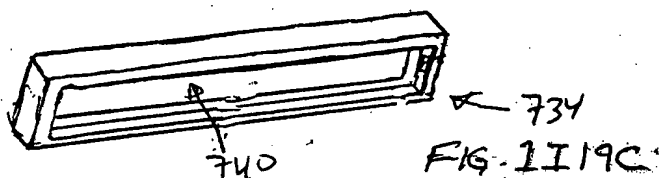
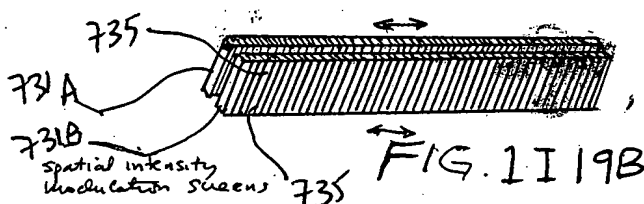
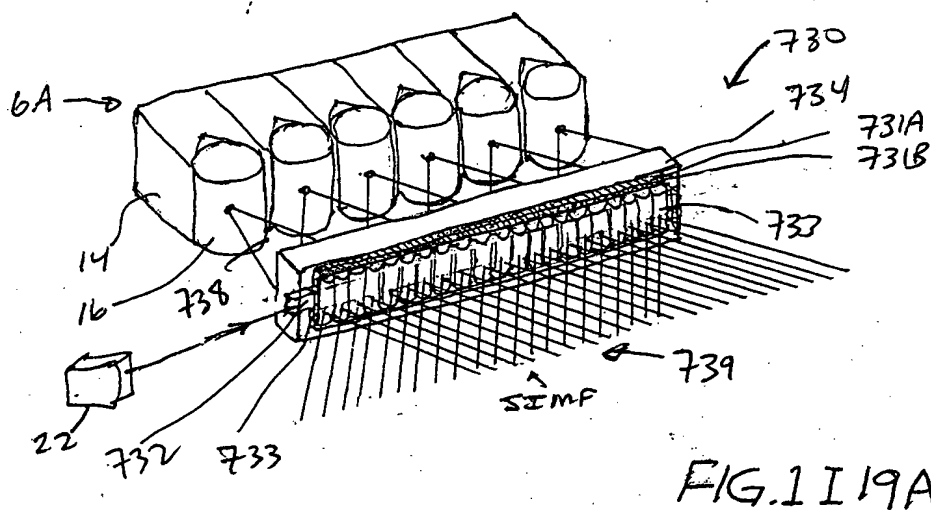
A

Temporally average the numerous substantially different time-varying speckle-noise patterns produced at the image detection array in the IFD Subsystem during the photo-integration time period thereof, so as to thereby reduce power of the speckle-noise pattern observed at the image detection array.

B

FIG. 1I18B

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Fourth Generalized Method of
Reducing Speckle-Noise Patterns
at Image Detection array
of the IPD Subsystem

(SIMF)

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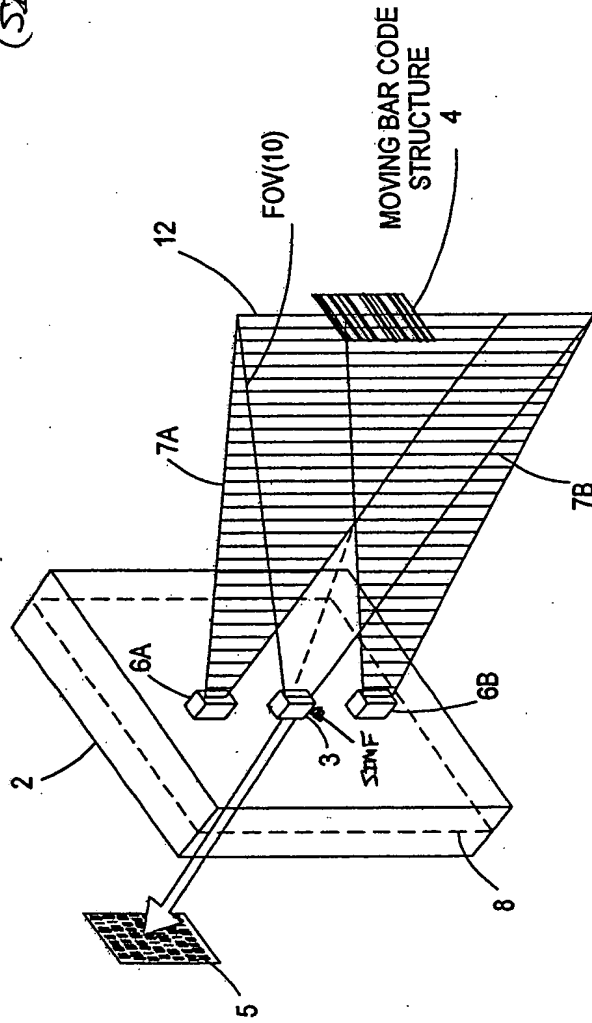


FIG. 1120

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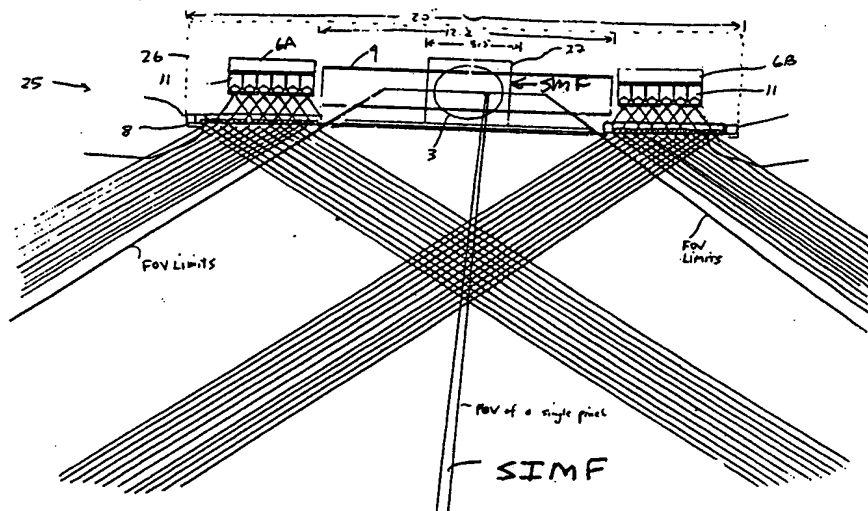


FIG. II 21A

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The ~~Fourth~~ Generalized Speckle-Noise Pattern Reduction Method
Of The Present Invention

After illumination of the target with the planar laser illumination beam (PLIB), modulate the spatial intensity of the reflected/scattered (i.e. received) PLIB along the planar extent thereof according to a spatial intensity modulation function (SIMF) so as to modulate the phase along the wavefront of the received PLIB and produce numerous substantially different time-varying speckle-noise patterns at the image detection array of the IFD Subsystem during the photo-integration time period thereof.

A

Temporally average the many substantially different time-varying speckle-noise patterns produced at the image detection array in the IFD Subsystem during the photo-integration time period thereof, so as to thereby reduce the speckle-noise pattern observed at the image detection array.

B

FIG. 1I21B

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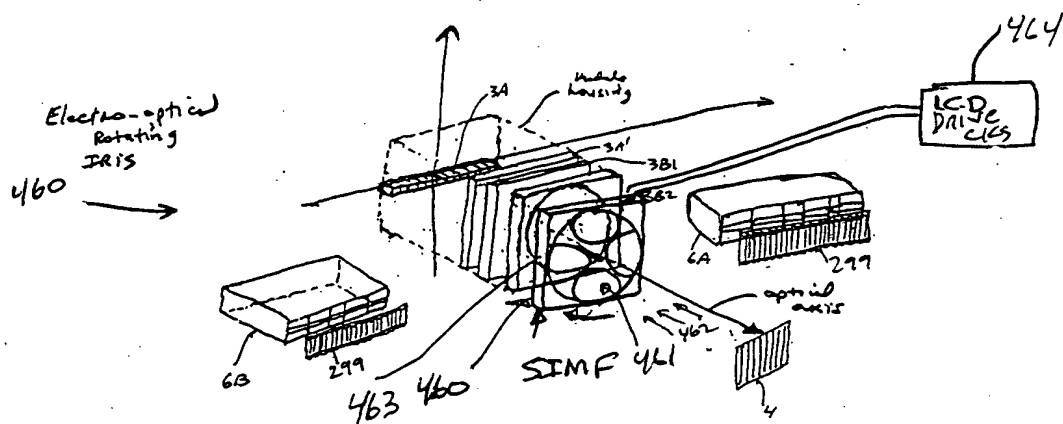


FIG. 1I 22A

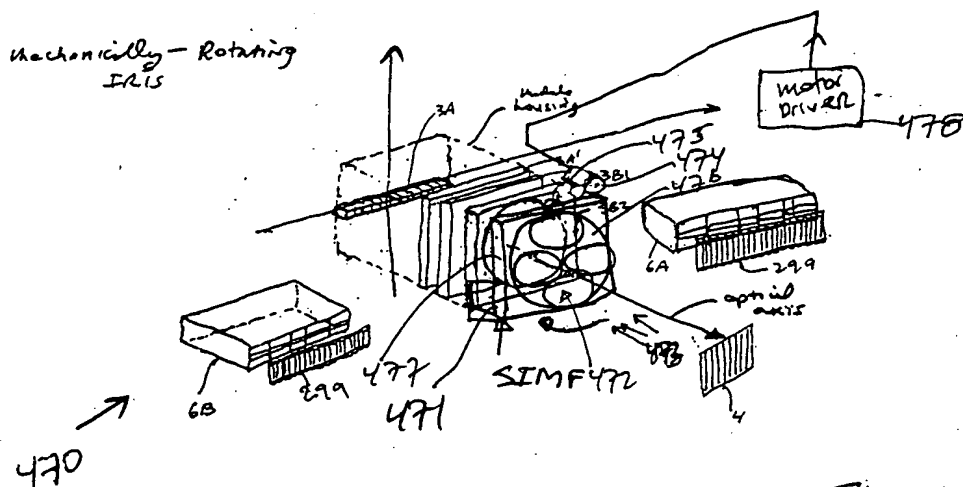


FIG. 1I 22B

Fourth Generalized Method of
Reducing Spindle-Noise Patterns
at Image Detection Array
of the IPD Subsystem

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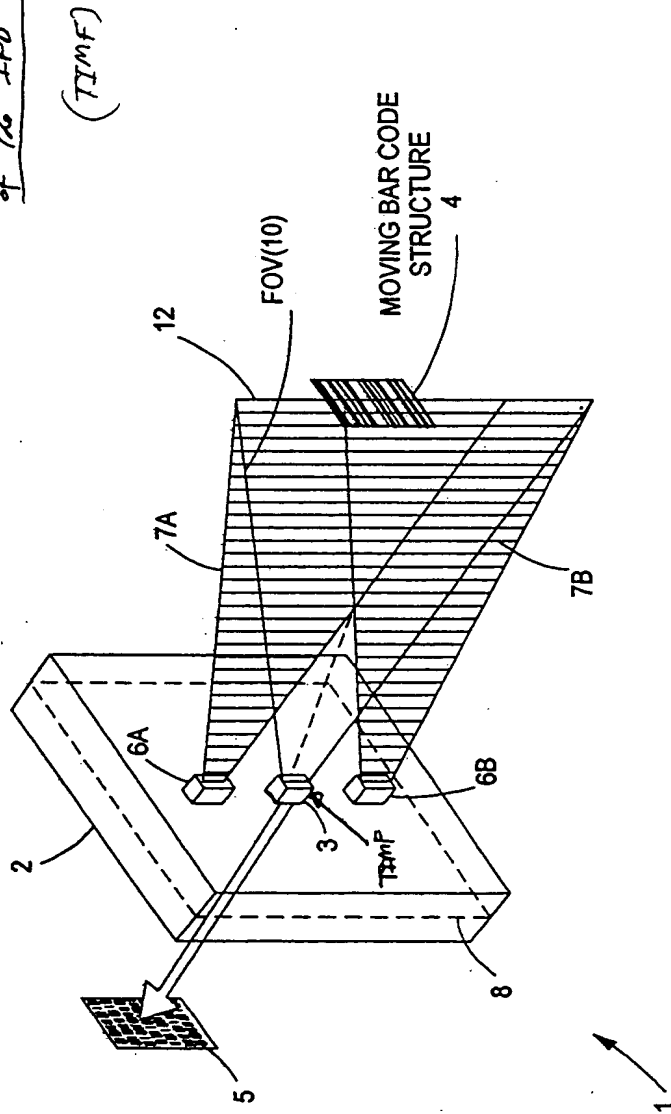


FIG. 1123

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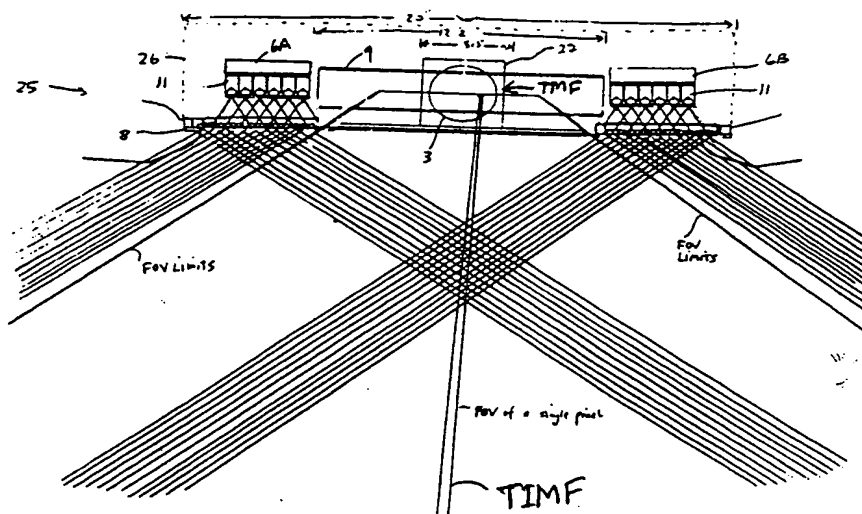


FIG. 1I24A

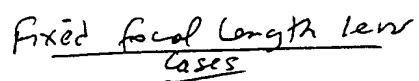
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The Fifth Generalized Speckle-Noise Pattern Reduction Method
Of The Present Invention

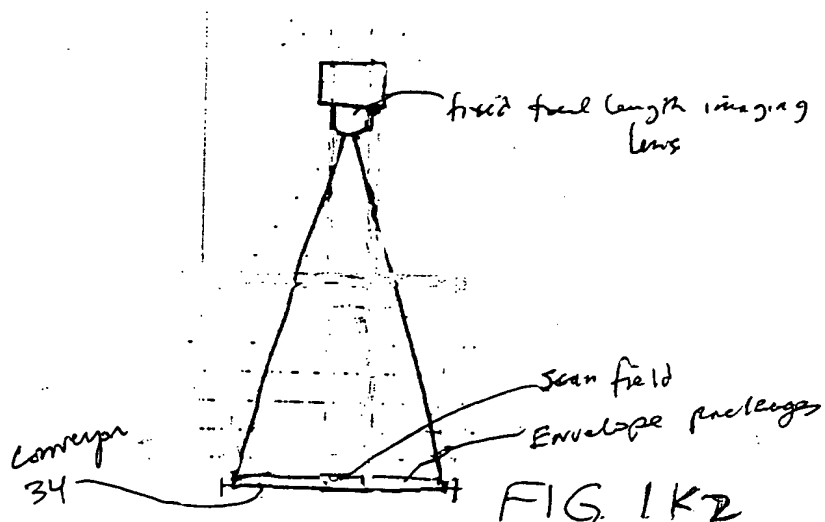
After illumination of the target with the planar laser illumination beam (PLIB), modulate the temporal intensity of the reflected/scattered (i.e. received) PLIB along the planar extent thereof according to a temporal intensity modulation function (TIMF) so as to modulate the phase along the wavefront of the received PLIB and produce many substantially different time-varying speckle-noise patterns at the image detection array of the IFD Subsystem during the photo-integration time period thereof. A

Temporally average the many substantially different time-varying speckle-noise patterns produced at the image detection array in the IFD Subsystem during the photo-integration time period thereof, so as to thereby reduce the speckle-noise pattern observed at the image detection array. B

FIG. 1I 24B

[illegible]

Conway 34 FIG 1K1



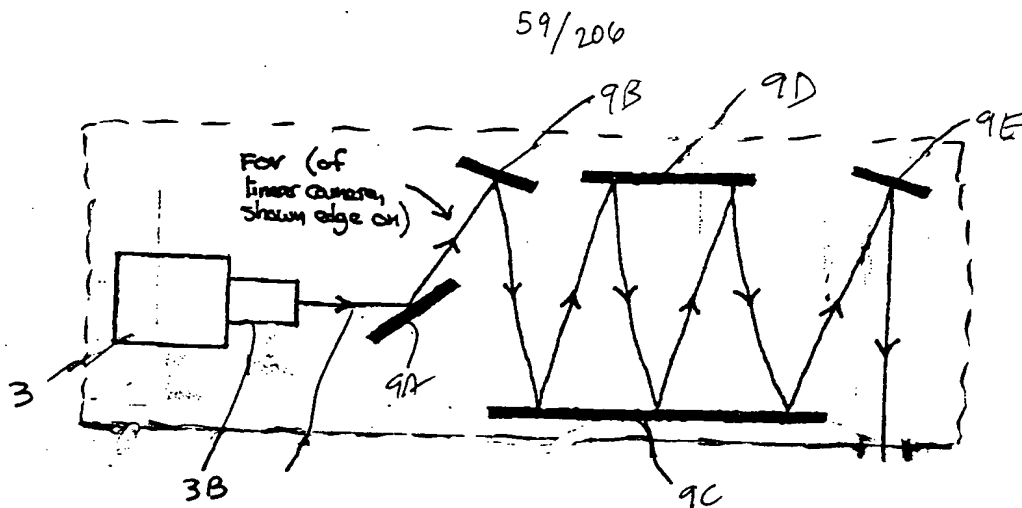


FIG. 1L1

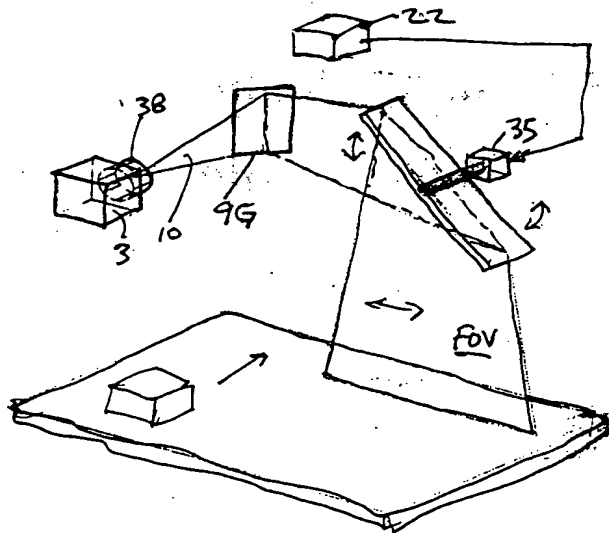


FIG. 1L2

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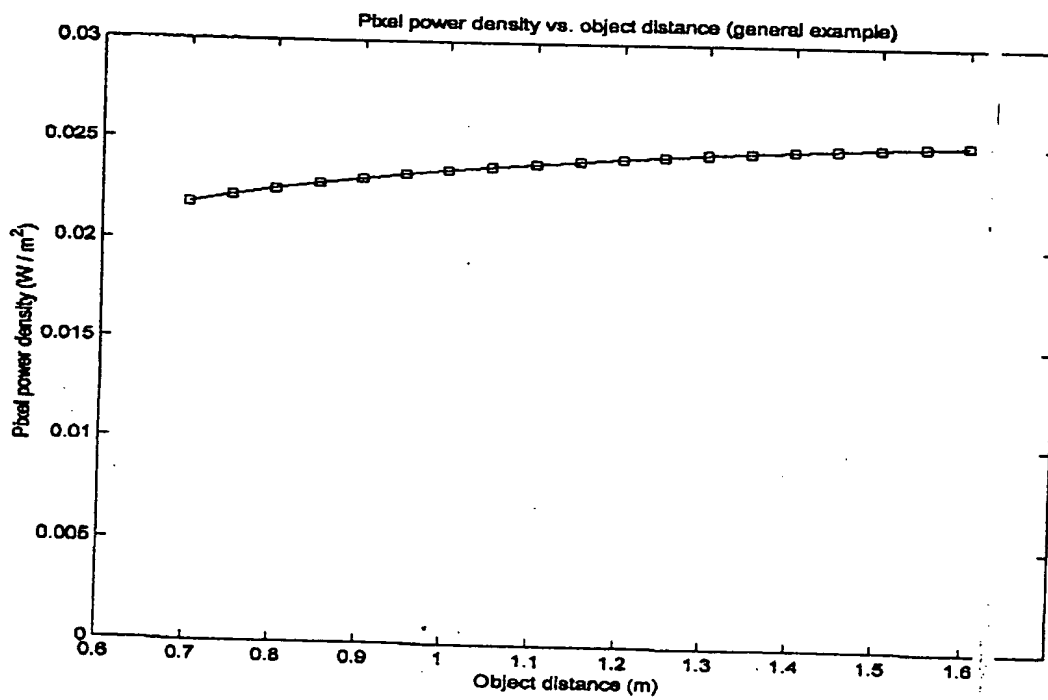


FIG-1M1

09083120 113504

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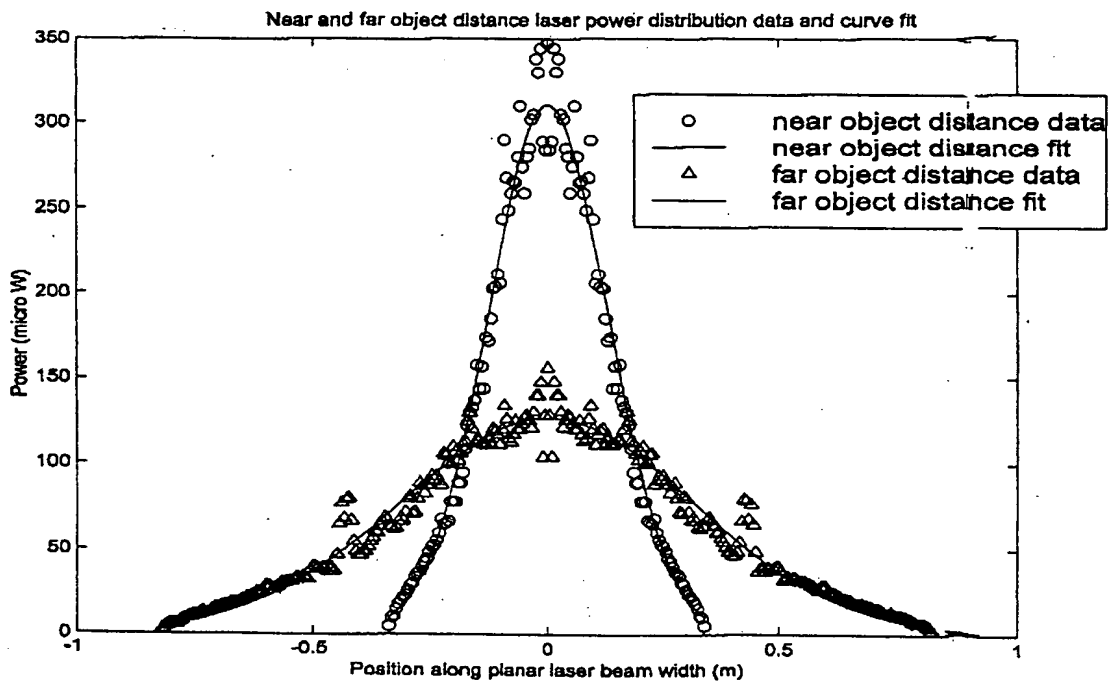


FIG. 1M2

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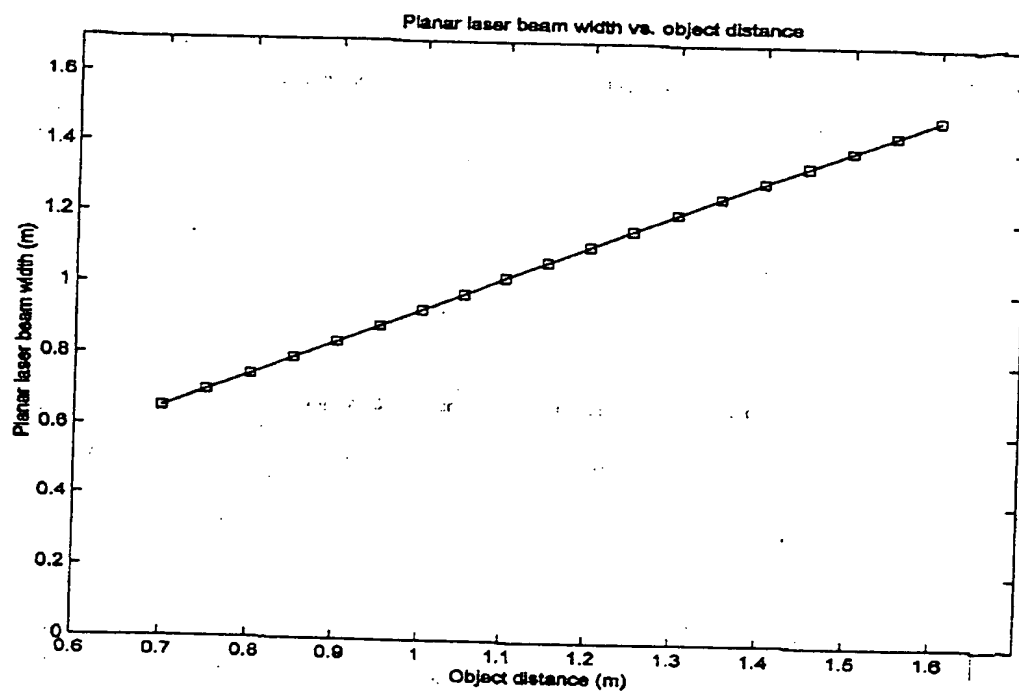


FIG. 1M3

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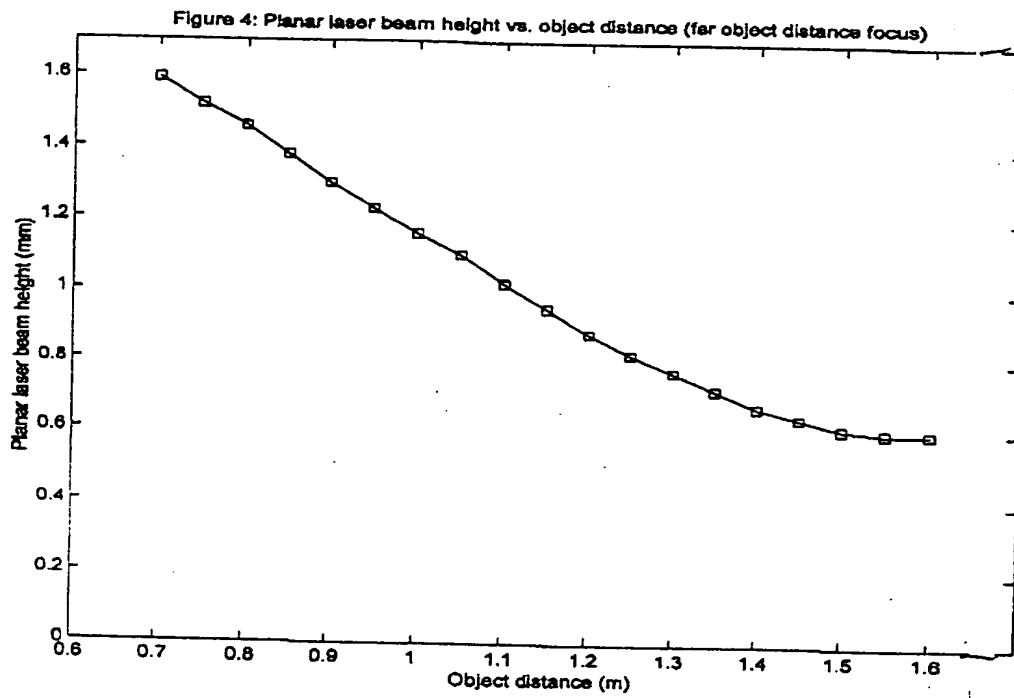


FIG 1M4

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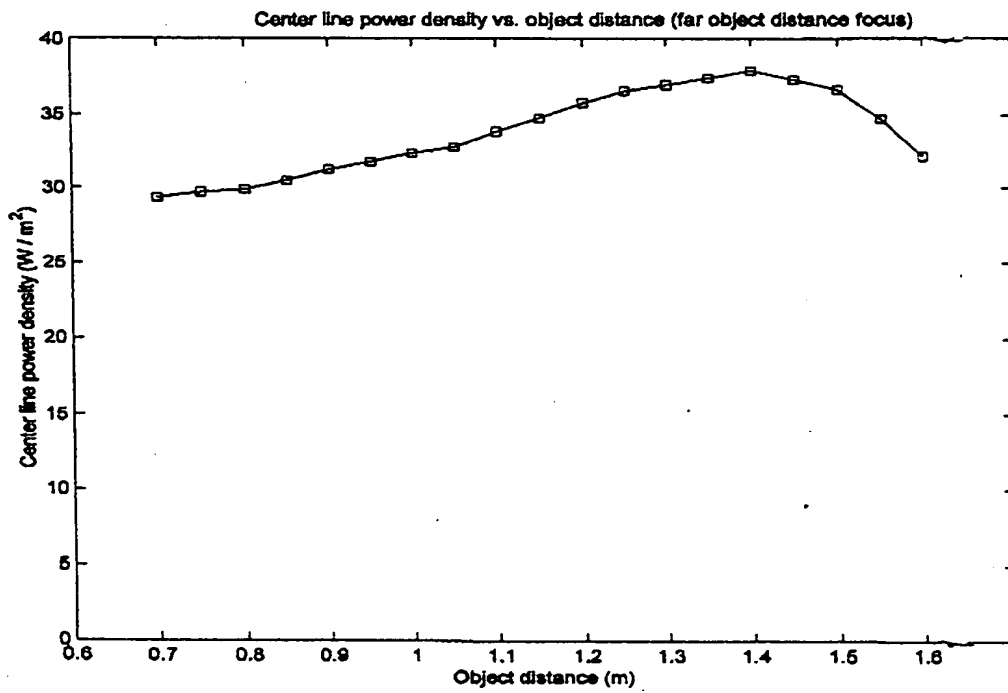


FIG. 1N

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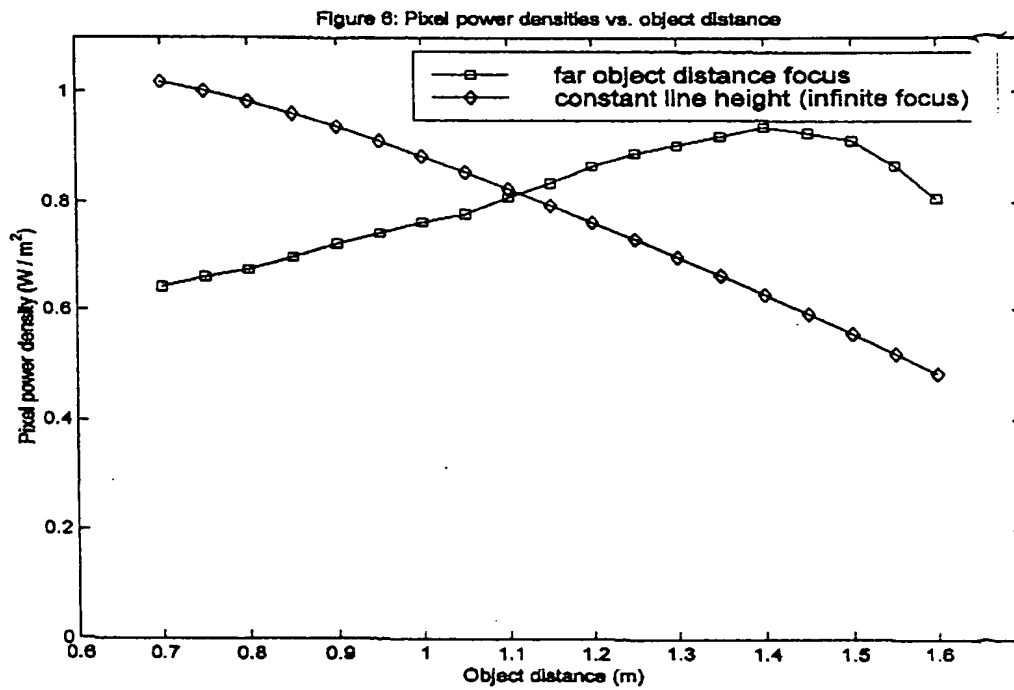


FIG. 10

09883130 112604

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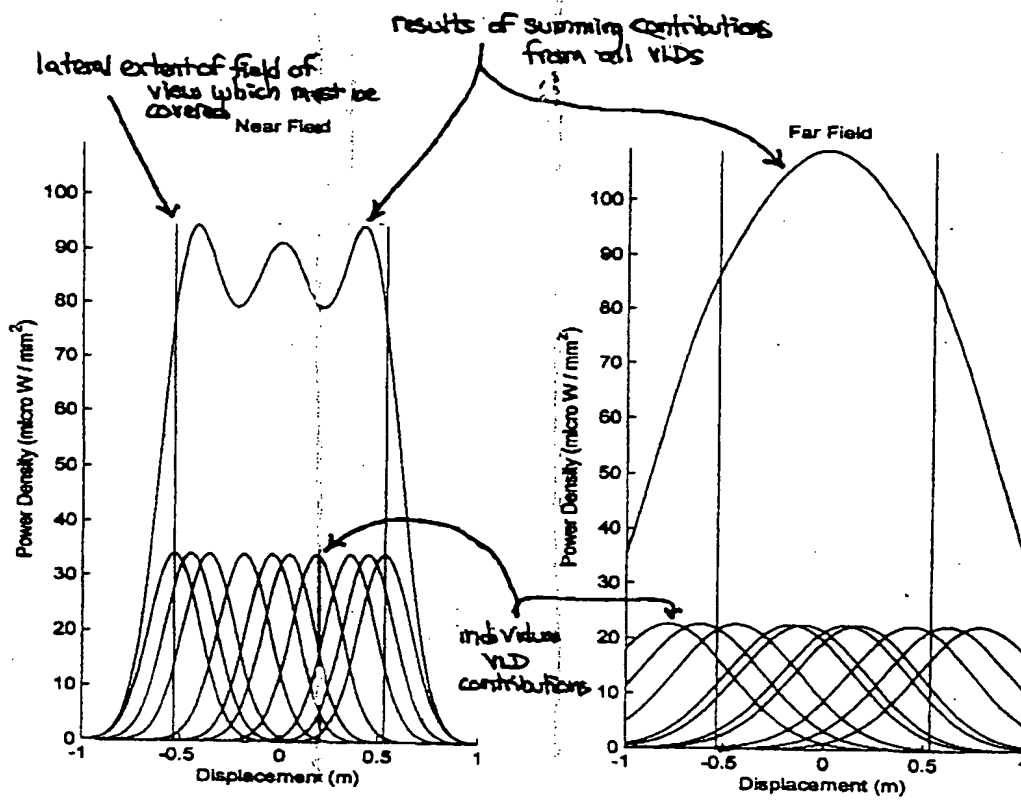


FIG. 1P1

FIG. 1P2

0988130.13604

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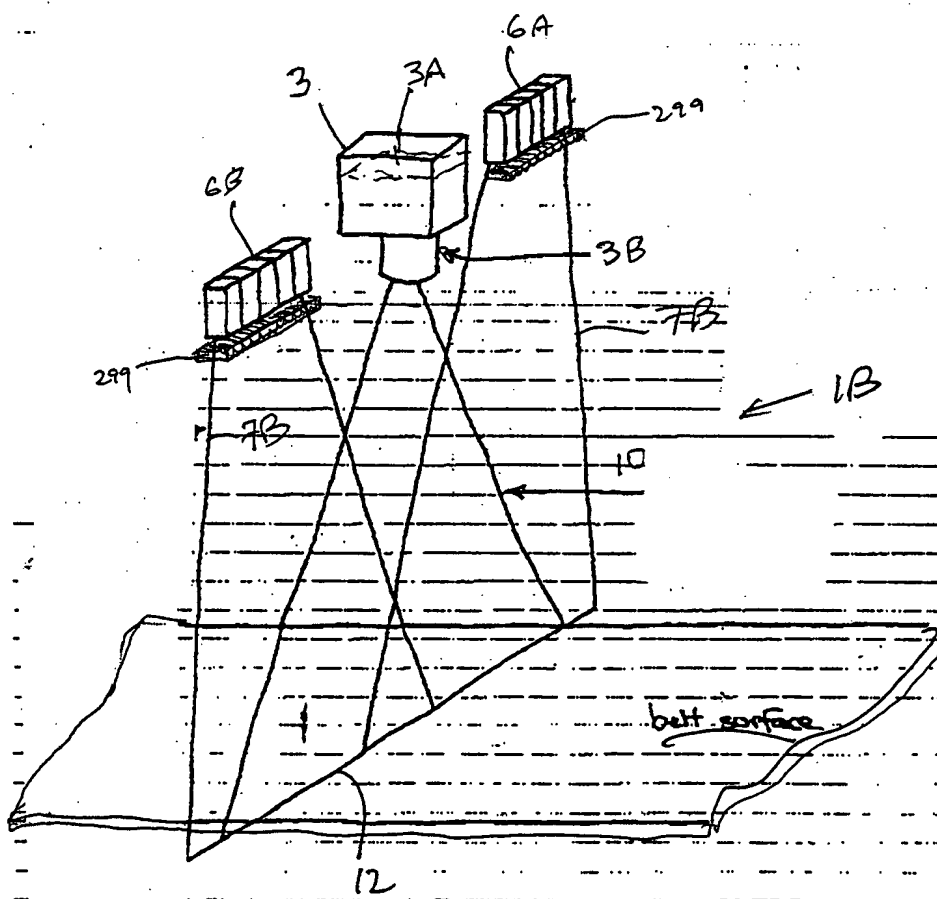


FIG. 101

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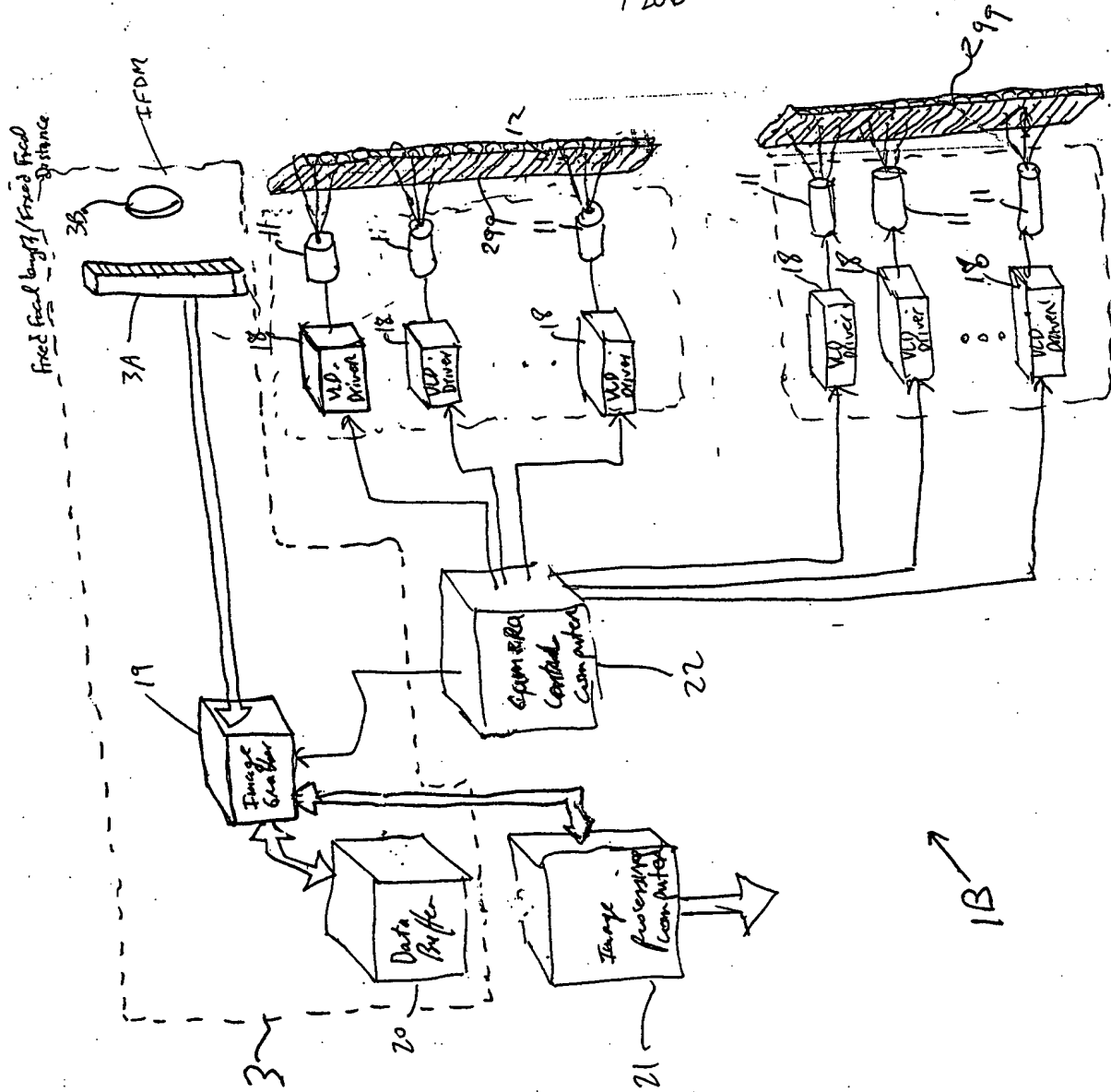


FIG. 102

09883130 112604

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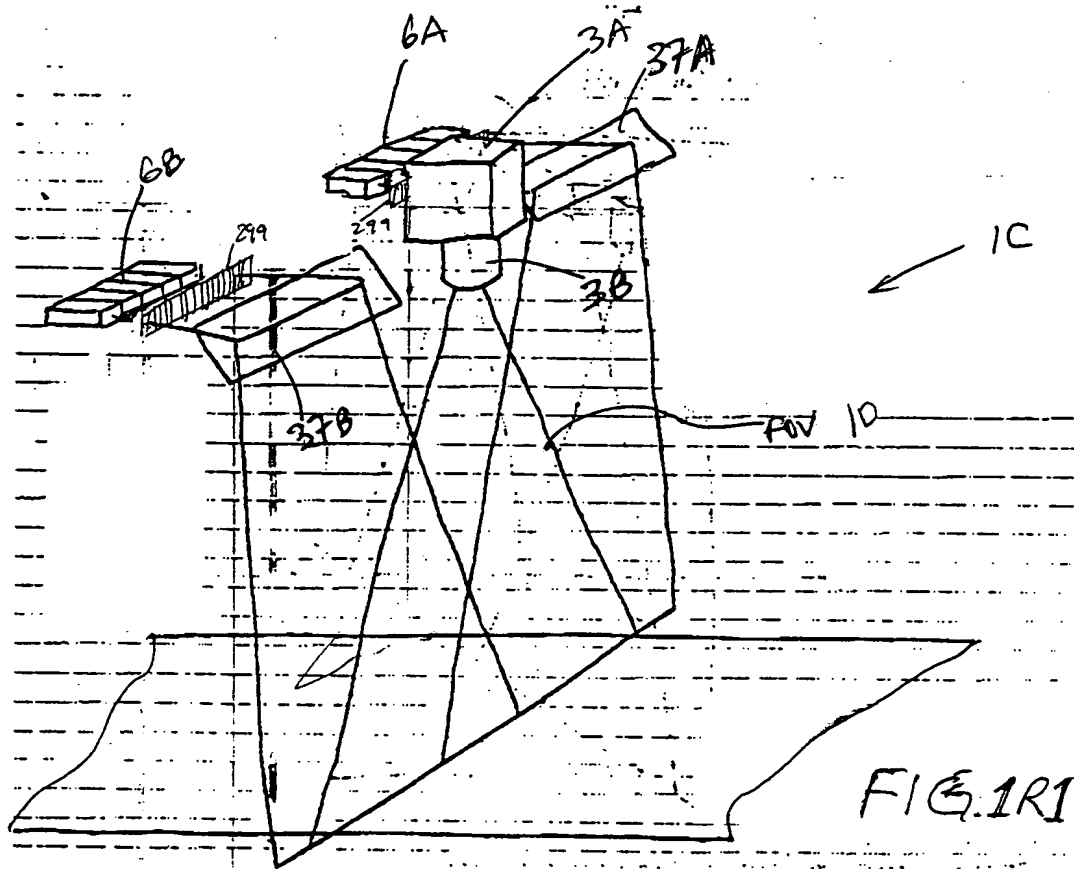


FIG. 1R1

SECRET

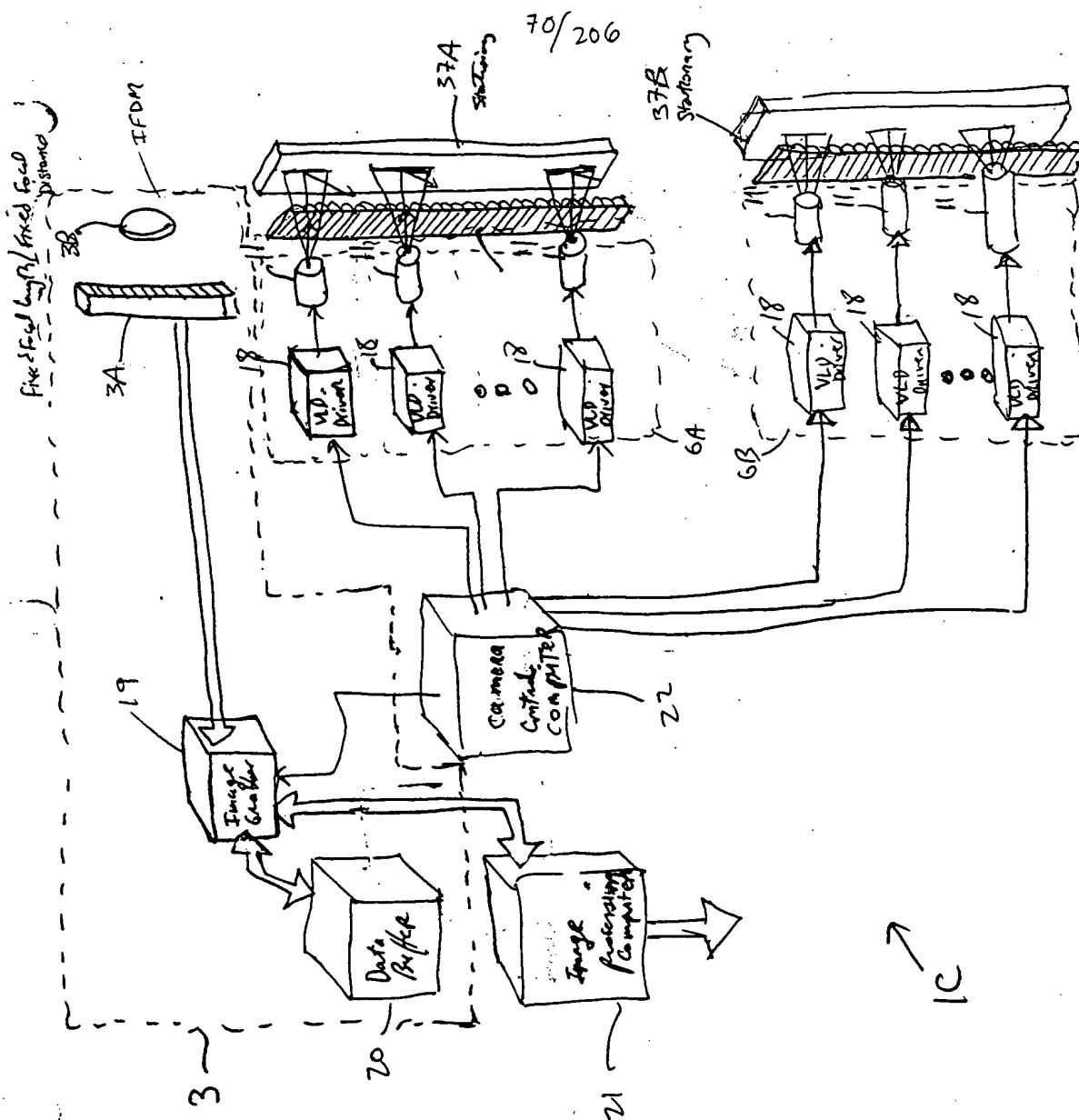


FIG. 1R2

[illegible]

FKG.1S1

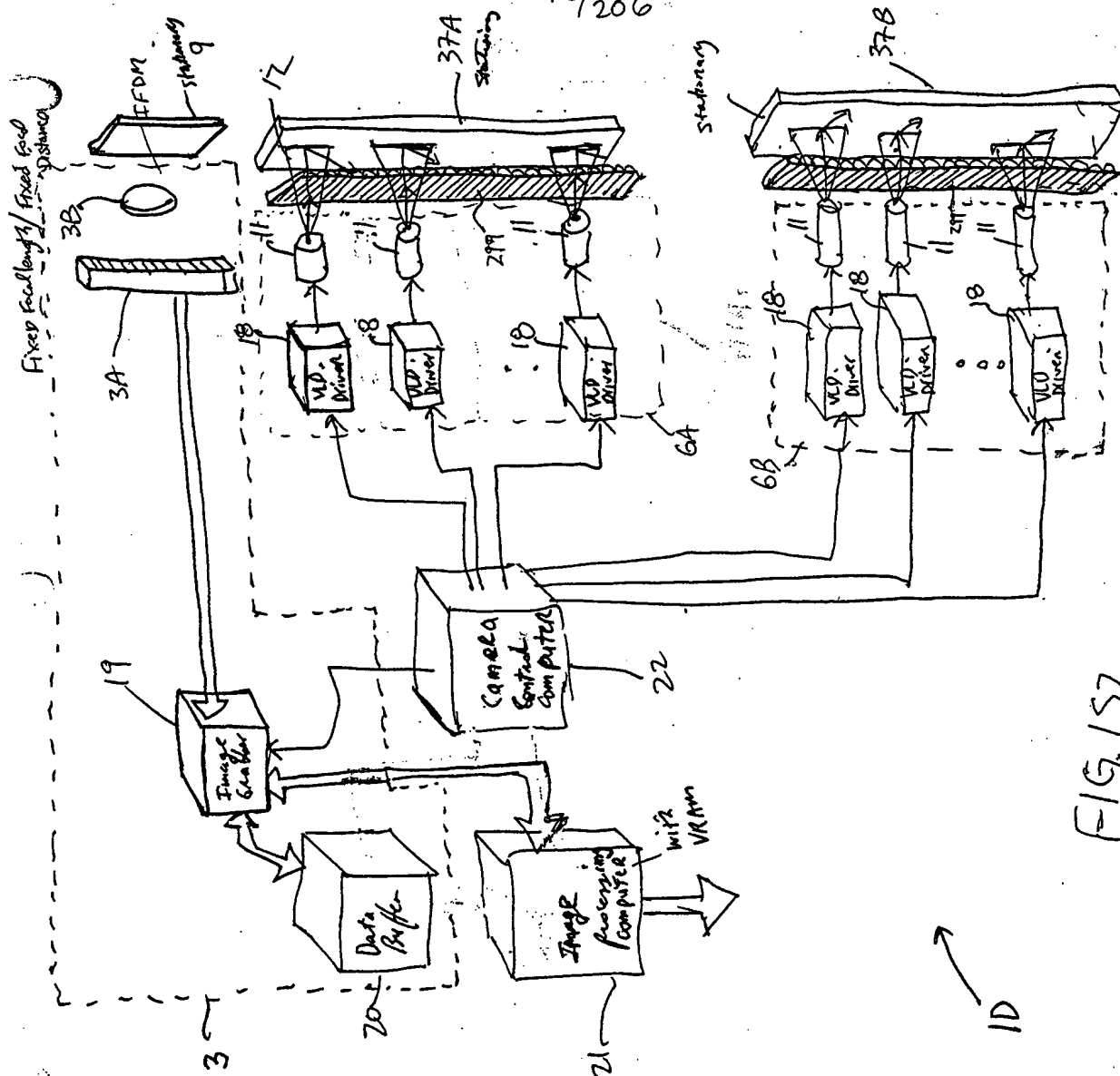


FIG. 152

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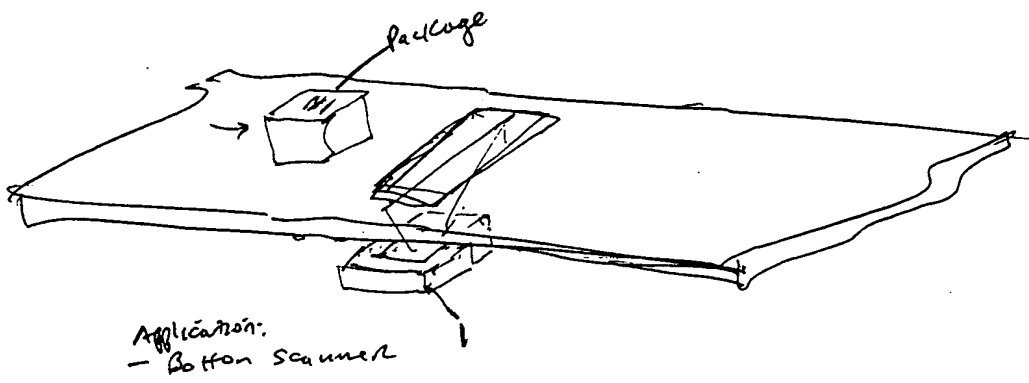
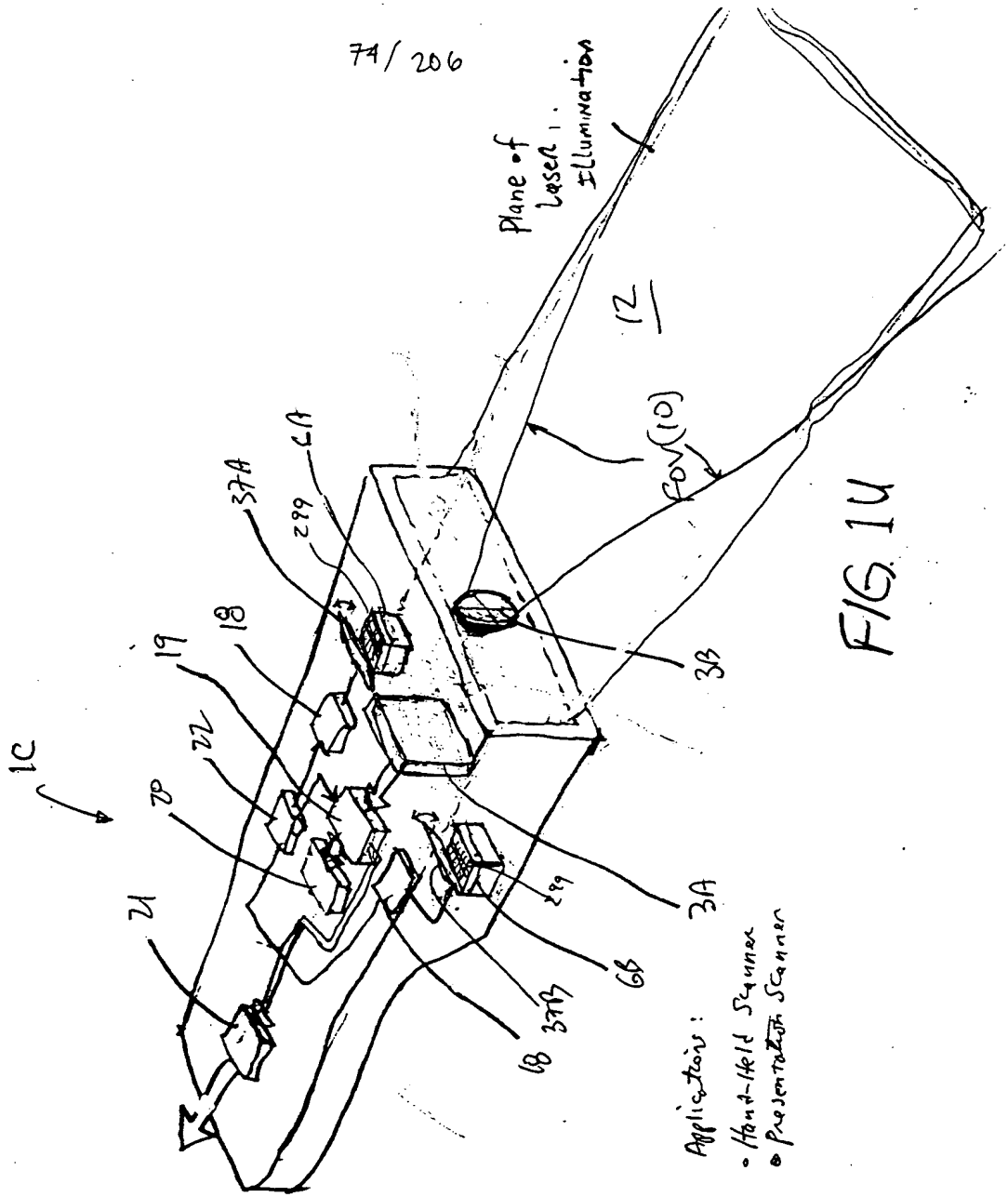


FIG 1T



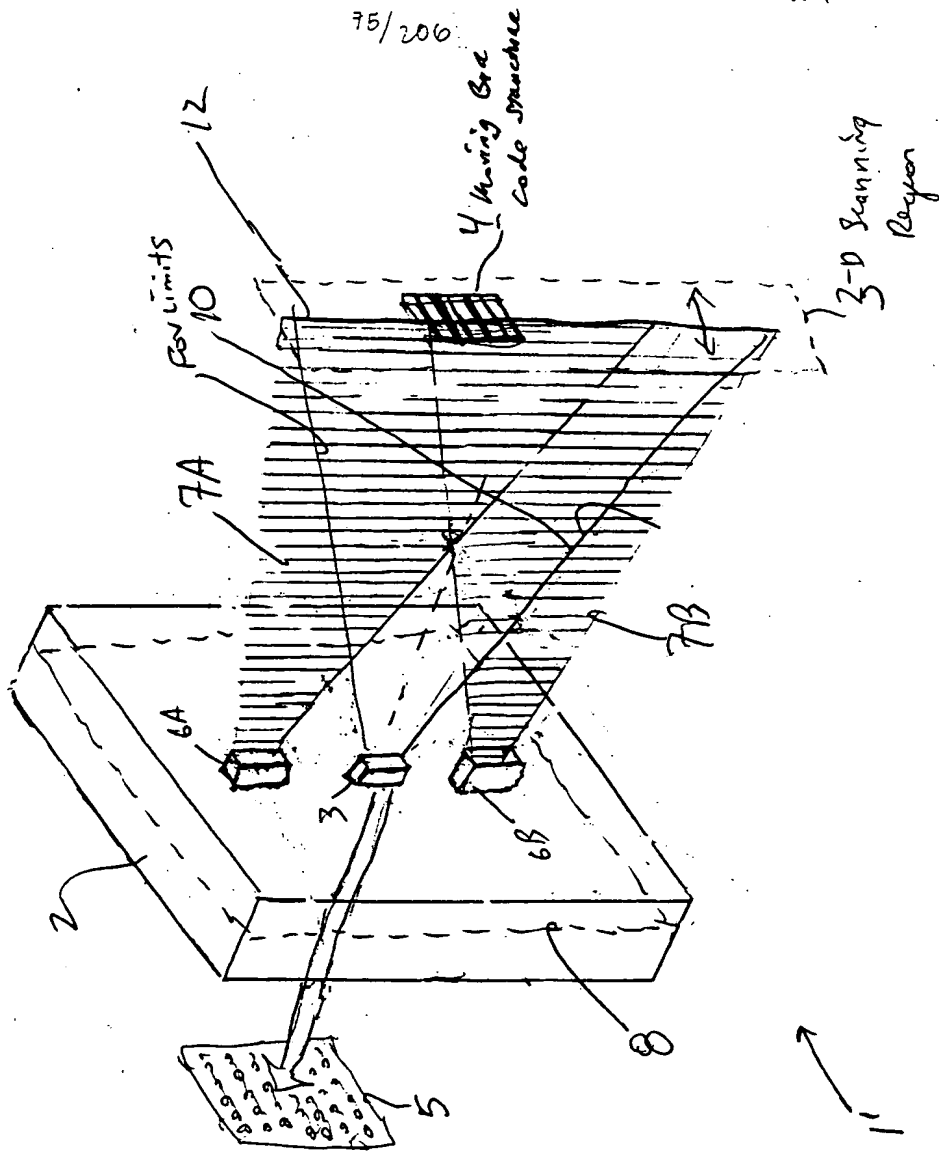


FIG. IVI

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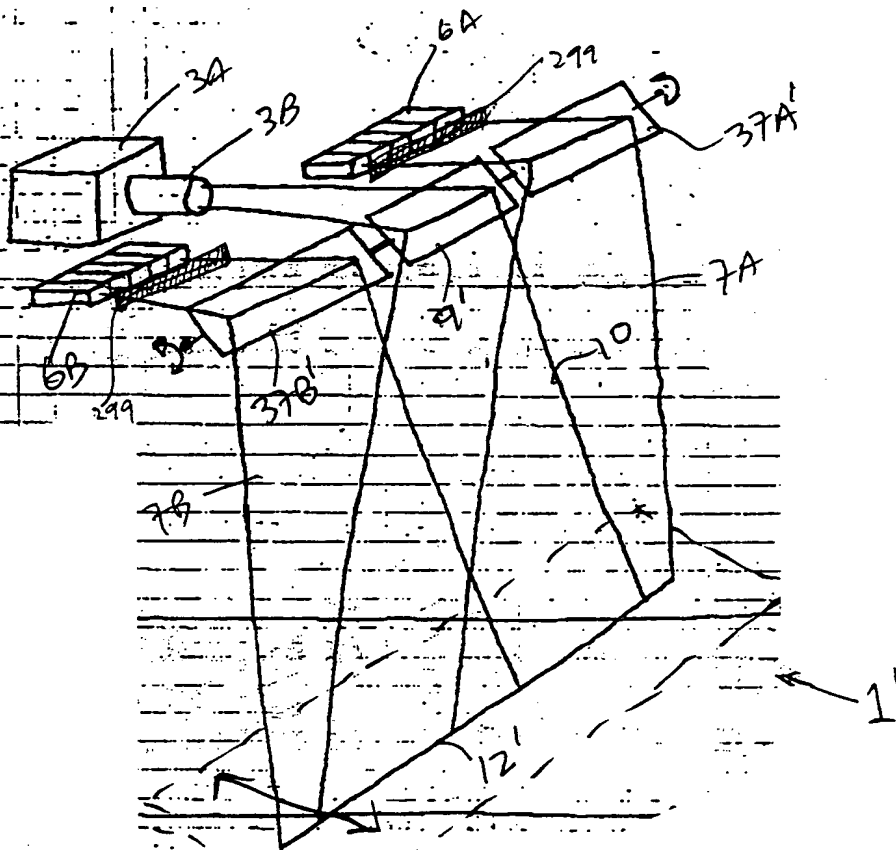
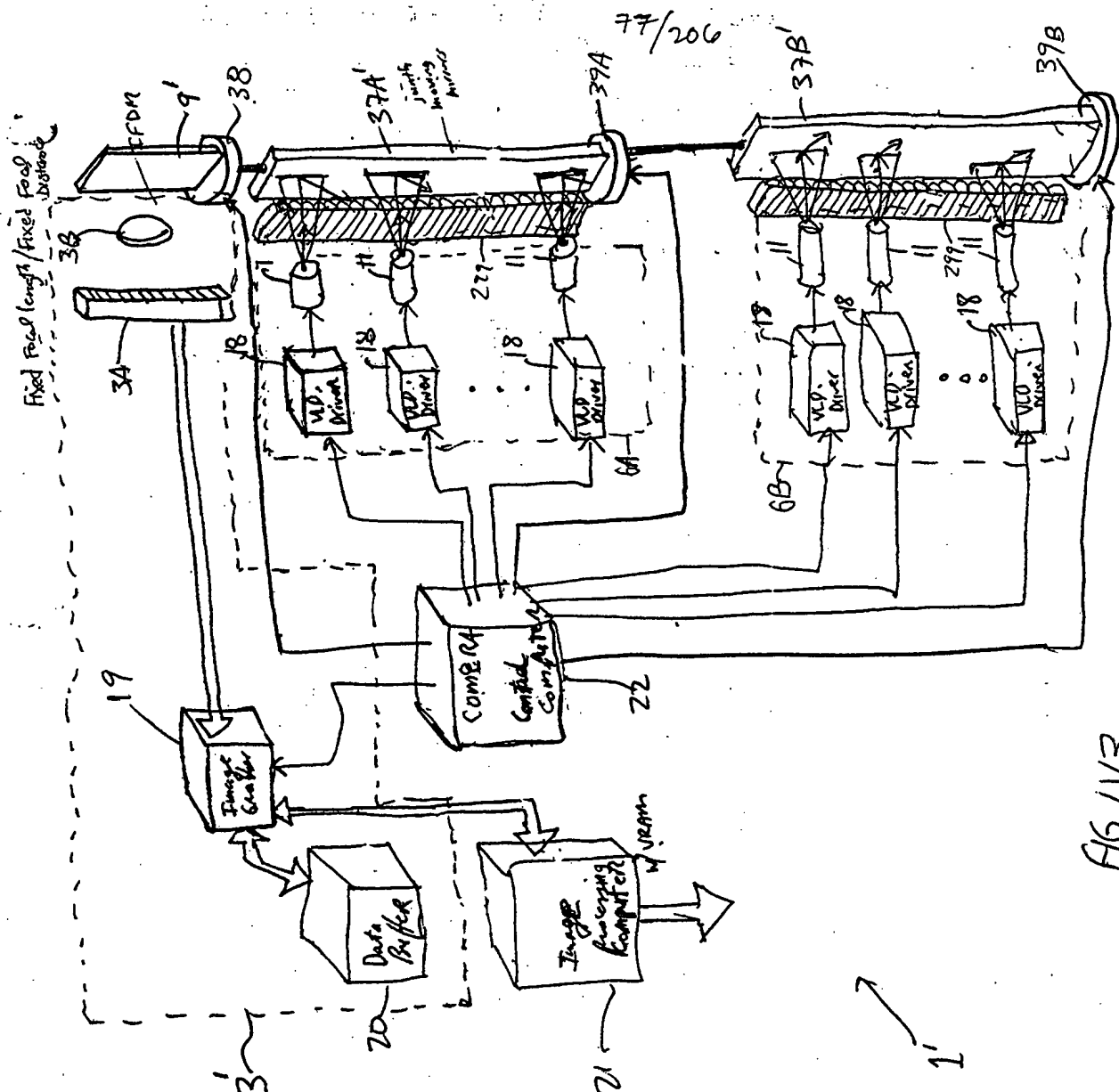


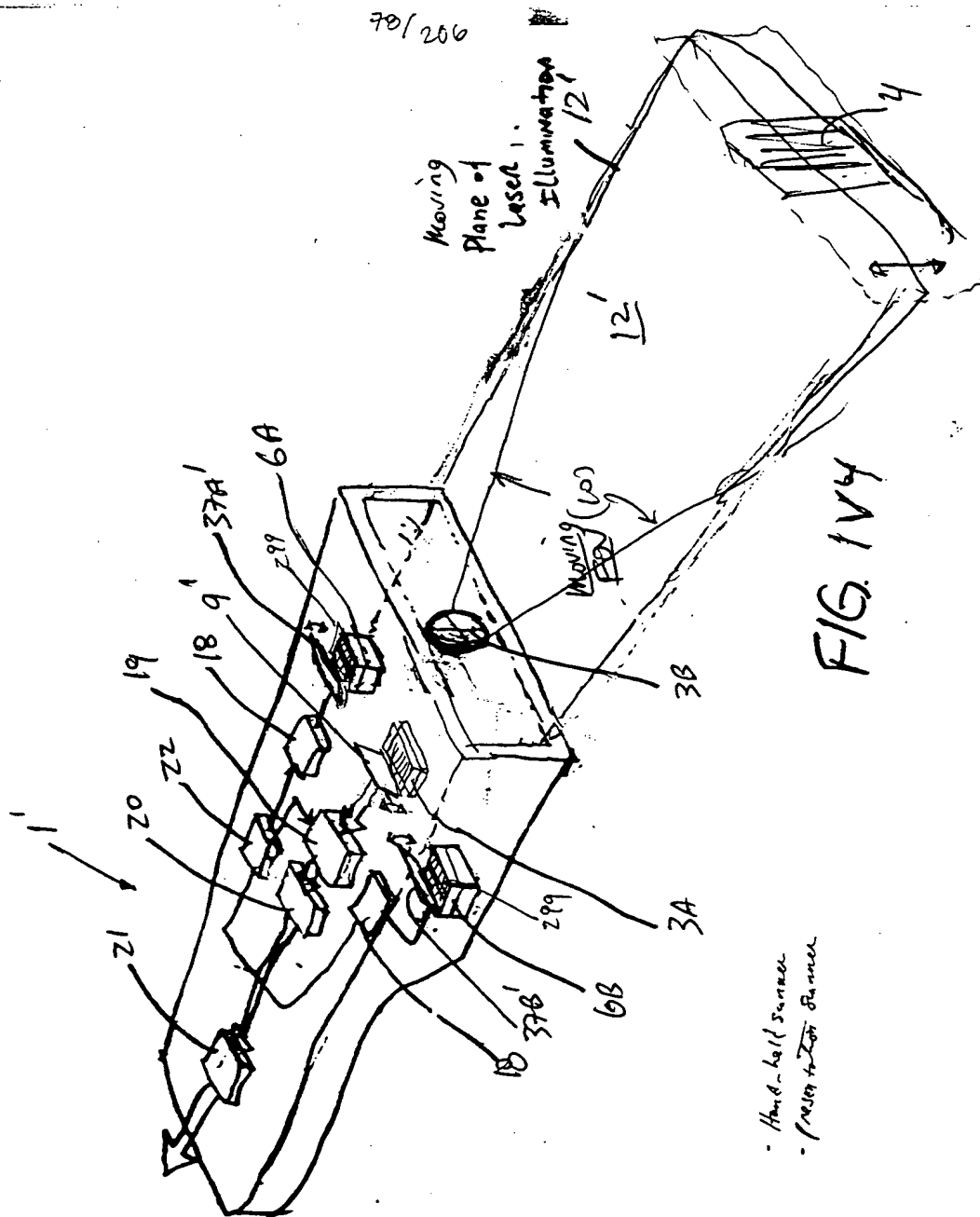
FIG. IV2

2-D
keyway
space

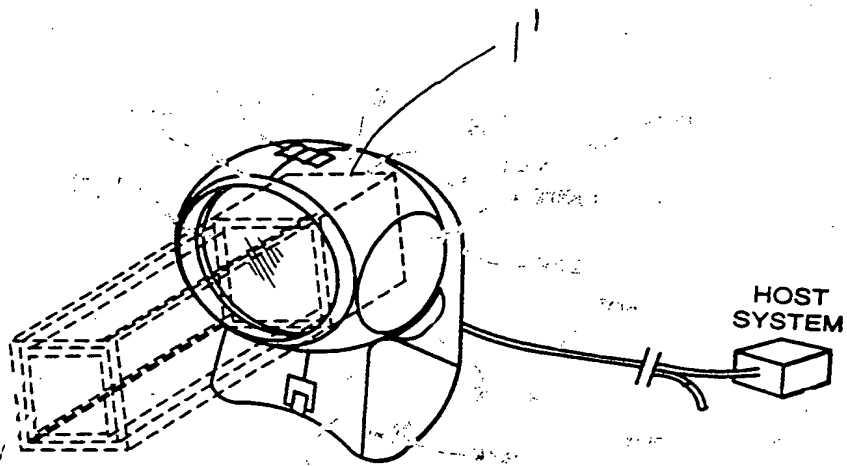
1947 1948 1949 1950 1951 1952 1953 1954 1955 1956 1957 1958 1959 1960 1961 1962 1963 1964 1965 1966 1967 1968 1969 1970 1971 1972 1973 1974 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2049 2050 2051 2052 2053 2054 2055 2056 2057 2058 2059 2060 2061 2062 2063 2064 2065 2066 2067 2068 2069 2070 2071 2072 2073 2074 2075 2076 2077 2078 2079 2080 2081 2082 2083 2084 2085 2086 2087 2088 2089 2090 2091 2092 2093 2094 2095 2096 2097 2098 2099 2100 2101 2102 2103 2104 2105 2106 2107 2108 2109 2110 2111 2112 2113 2114 2115 2116 2117 2118 2119 2120 2121 2122 2123 2124 2125 2126 2127 2128 2129 2130 2131 2132 2133 2134 2135 2136 2137 2138 2139 2140 2141 2142 2143 2144 2145 2146 2147 2148 2149 2150 2151 2152 2153 2154 2155 2156 2157 2158 2159 2160 2161 2162 2163 2164 2165 2166 2167 2168 2169 2170 2171 2172 2173 2174 2175 2176 2177 2178 2179 2180 2181 2182 2183 2184 2185 2186 2187 2188 2189 2190 2191 2192 2193 2194 2195 2196 2197 2198 2199 2200 2201 2202 2203 2204 2205 2206 2207 2208 2209 2210 2211 2212 2213 2214 2215 2216 2217 2218 2219 2220 2221 2222 2223 2224 2225 2226 2227 2228 2229 2230 2231 2232 2233 2234 2235 2236 2237 2238 2239 2240 2241 2242 2243 2244 2245 2246 2247 2248 2249 2250 2251 2252 2253 2254 2255 2256 2257 2258 2259 2260 2261 2262 2263 2264 2265 2266 2267 2268 2269 2270 2271 2272 2273 2274 2275 2276 2277 2278 2279 2280 2281 2282 2283 2284 2285 2286 2287 2288 2289 2290 2291 2292 2293 2294 2295 2296 2297 2298 2299 2300 2301 2302 2303 2304 2305 2306 2307 2308 2309 2310 2311 2312 2313 2314 2315 2316 2317 2318 2319 2320 2321 2322 2323 2324 2325 2326 2327 2328 2329 2330 2331 2332 2333 2334 2335 2336 2337 2338 2339 2340 2341 2342 2343 2344 2345 2346 2347 2348 2349 2350 2351 2352 2353 2354 2355 2356 2357 2358 2359 2360 2361 2362 2363 2364 2365 2366 2367 2368 2369 2370 2371 2372 2373 2374 2375 2376 2377 2378 2379 2380 2381 2382 2383 2384 2385 2386 2387 2388 2389 2390 2391 2392 2393 2394 2395 2396 2397 2398 2399 2400 2401 2402 2403 2404 2405 2406 2407 2408 2409 2410 2411 2412 2413 2414 2415 2416 2417 2418 2419 2420 2421 2422 2423 2424 2425 2426 2427 2428 2429 2430 2431 2432 2433 2434 2435 2436 2437 2438 2439 2440 2441 2442 2443 2444 2445 2446 2447 2448 2449 2450 2451 2452 2453 2454 2455 2456 2457 2458 2459 2460 2461 2462 2463 2464 2465 2466 2467 2468 2469 2470 2471 2472 2473 2474 2475 2476 2477 2478 2479 2480 2481 2482 2483 2484 2485 2486 2487 2488 2489 2490 2491 2492 2493 2494 2495 2496 2497 2498 2499 2500 2501 2502 2503 2504 2505 2506 2507 2508 2509 2510 2511 2512 2513 2514 2515 2516 2517 2518 2519 2520 2521 2522 2523 2524 2525 2526 2527 2528 2529 2530 2531 2532 2533 2534 2535 2536 2537 2538 2539 2540 2541 2542 2543 2544 2545 2546 2547 2548 2549 2550 2551 2552 2553 2554 2555 2556 2557 2558 2559 2560 2561 2562 2563 2564 2565 2566 2567 2568 2569 2570 2571 2572 2573 2574 2575 2576 2577 2578 2579 2580 2581 2582 2583 2584 2585 2586 2587 2588 2589 2590 2591 2592 2593 2594 2595 2596 2597 2598 2599 2600 2601 2602 2603 2604 2605 2606 2607 2608 2609 2610 2611 2612 2613 2614 2615 2616 2617 2618 2619 2620 2621 2622 2623 2624 2625 2626 2627 2628 2629 2630 2631 2632 2633 2634 2635 2636 2637 2638 2639 2640 2641 2642 2643 2644 2645 2646 2647 2648 2649 2650 2651 2652 2653 2654 2655 2656 2657 2658 2659 2660 2661 2662 2663 2664 2665 2666 2667 2668 2669 2670 2671 2672 2673 2674 2675 2676 2677 2678 2679 2680 2681 2682 2683 2684 2685 2686 2687 2688 2689 2690 2691 2692 2693 2694 2695 2696 2697 2698 2699 2700 2701 2702 2703 2704 2705 2706 2707 2708 2709 2710 2711 2712 2713 2714 2715 2716 2717 2718 2719 2720 2721 2722 2723 2724 2725 2726 2727 2728 2729 2730 2731 2732 2733 2734 2735 2736 2737 2738 2739 2740 2741 2742 2743 2744 2745 2746 2747 2748 2749 2750 2751 2752 2753 2754 2755 2756 2757 2758 2759 2760 2761 2762 2763 2764 2765



AG.1V3



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(Presentation type scanner)

FIG. 1V5

09002430 442604

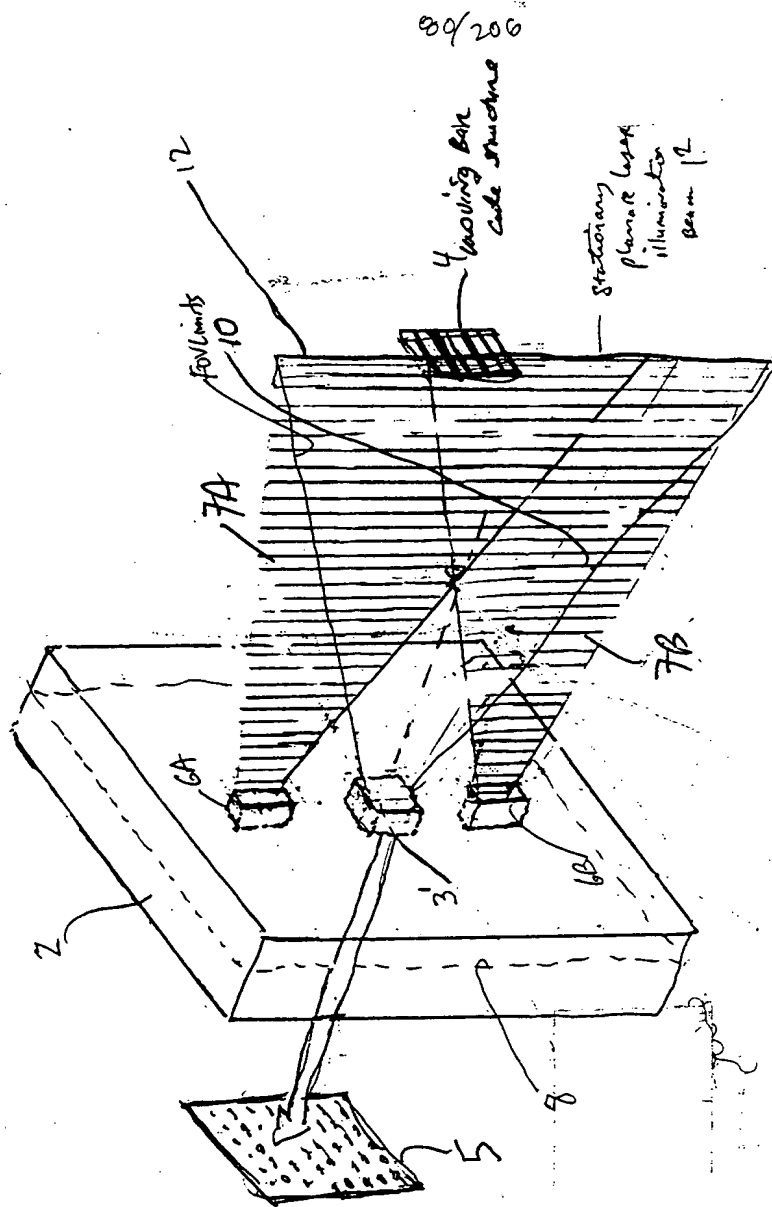


FIG. 2A

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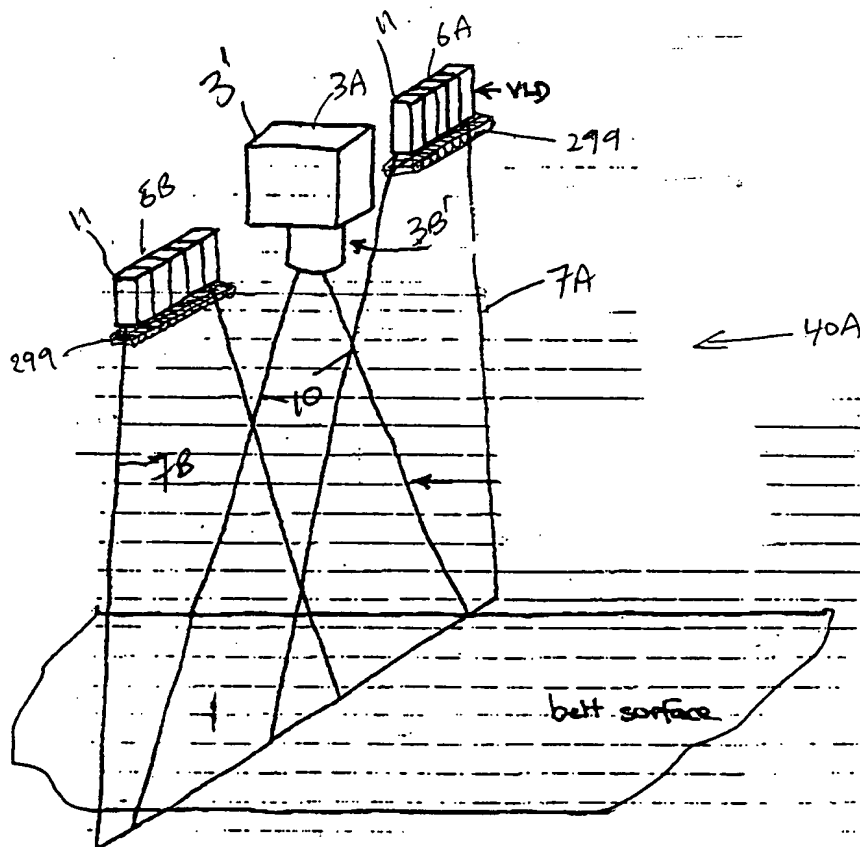


FIG. 2 B1

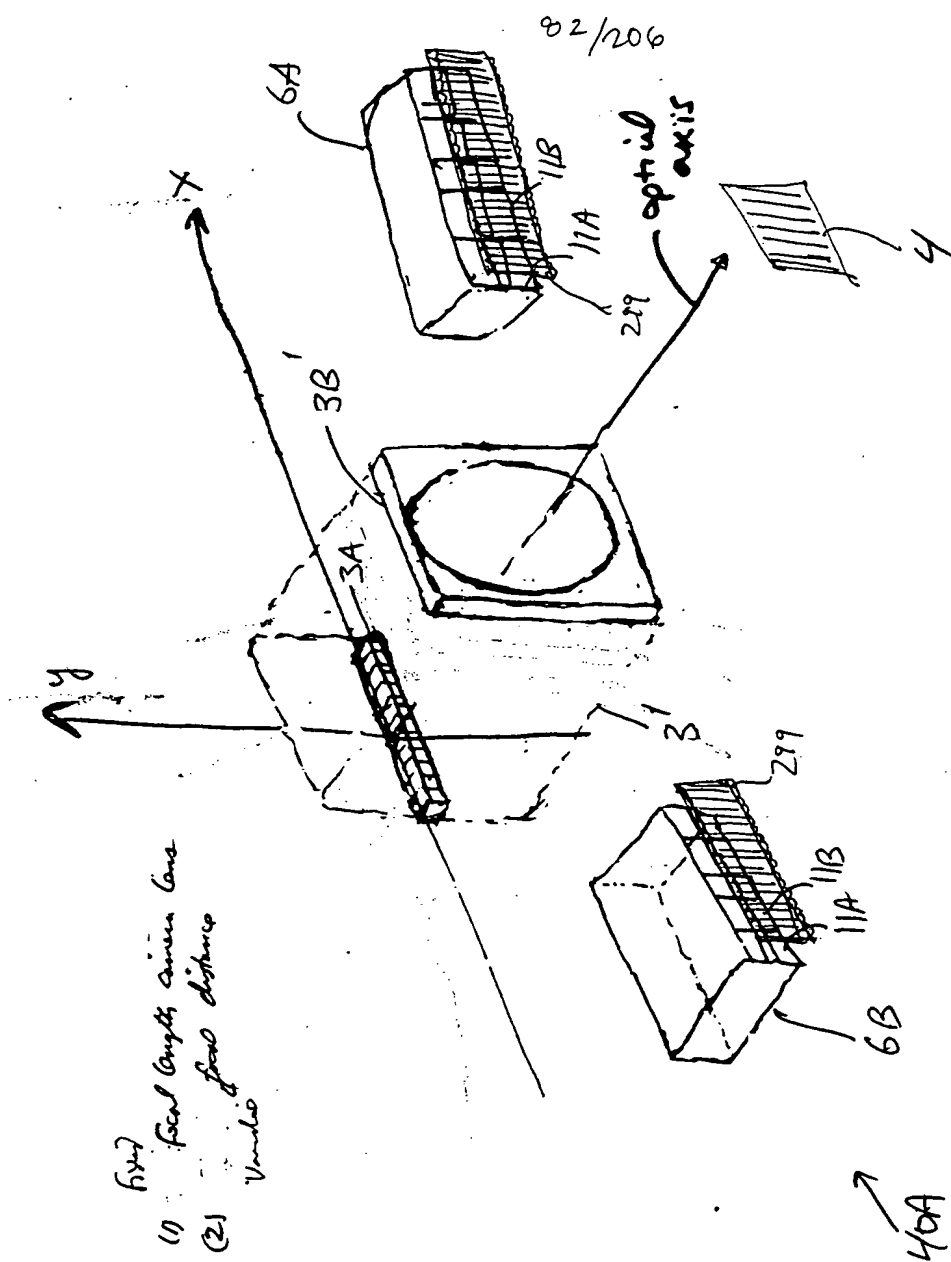
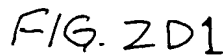


FIG. 2B2

Year	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100
1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	



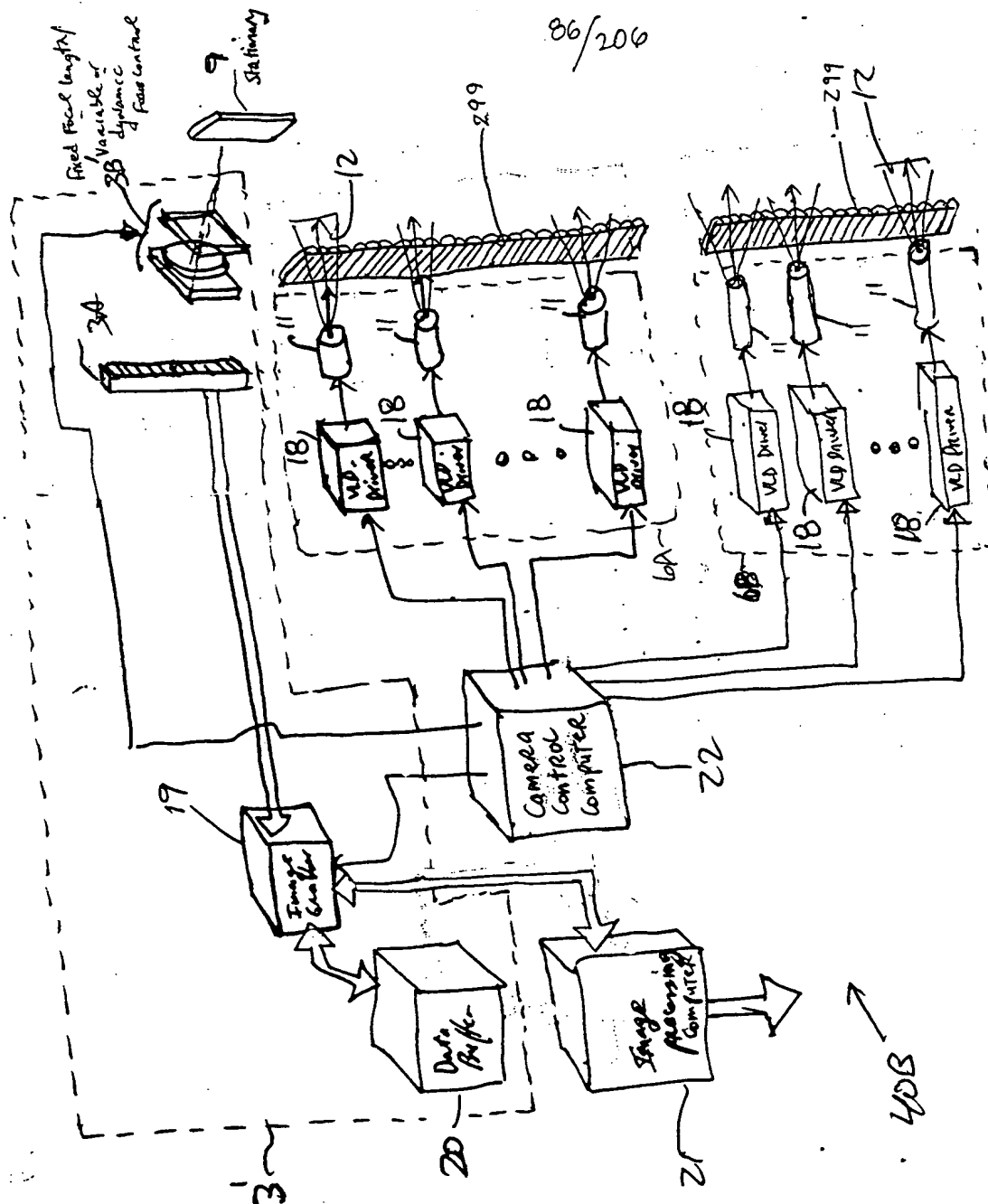
[illegible]

FIG. 2D2

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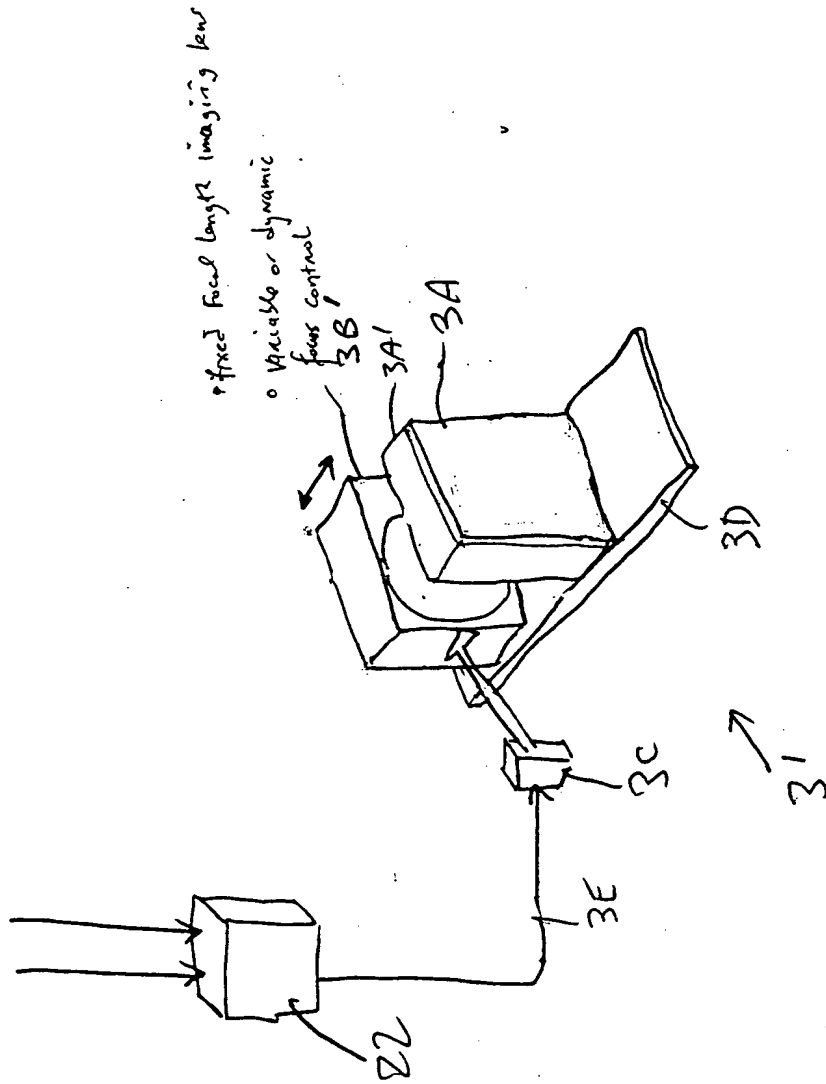


FIG. 2D3

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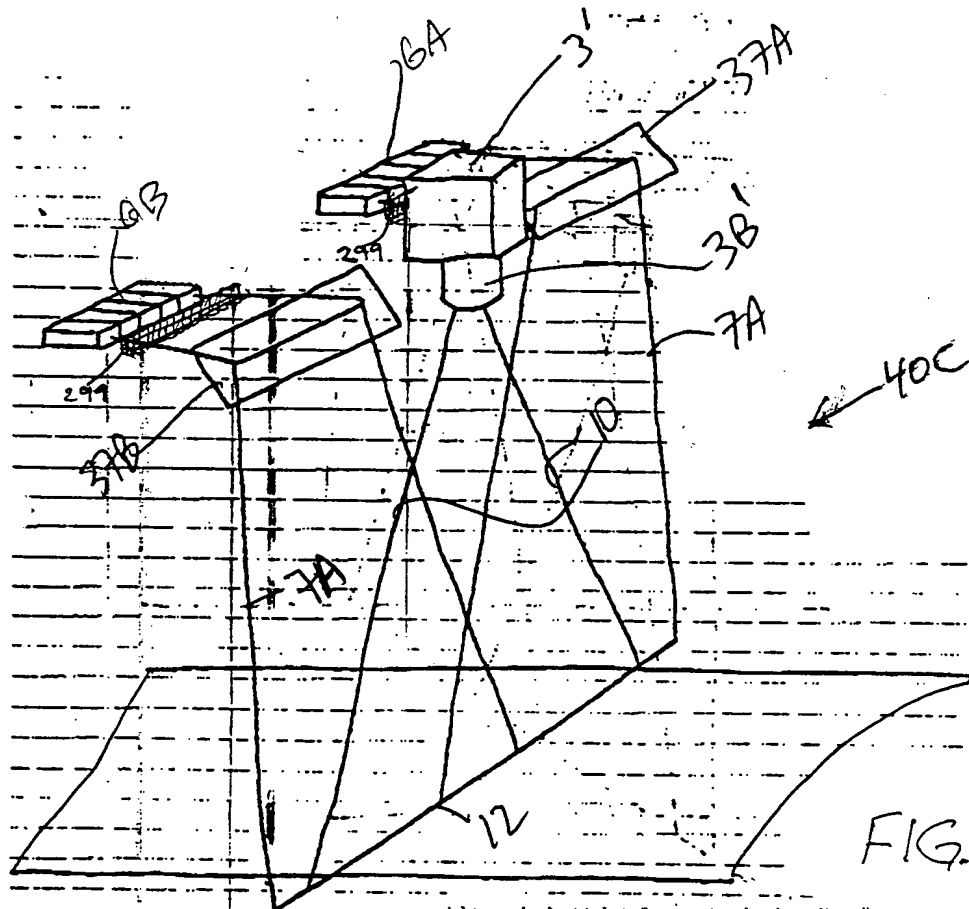


FIG. 2E1

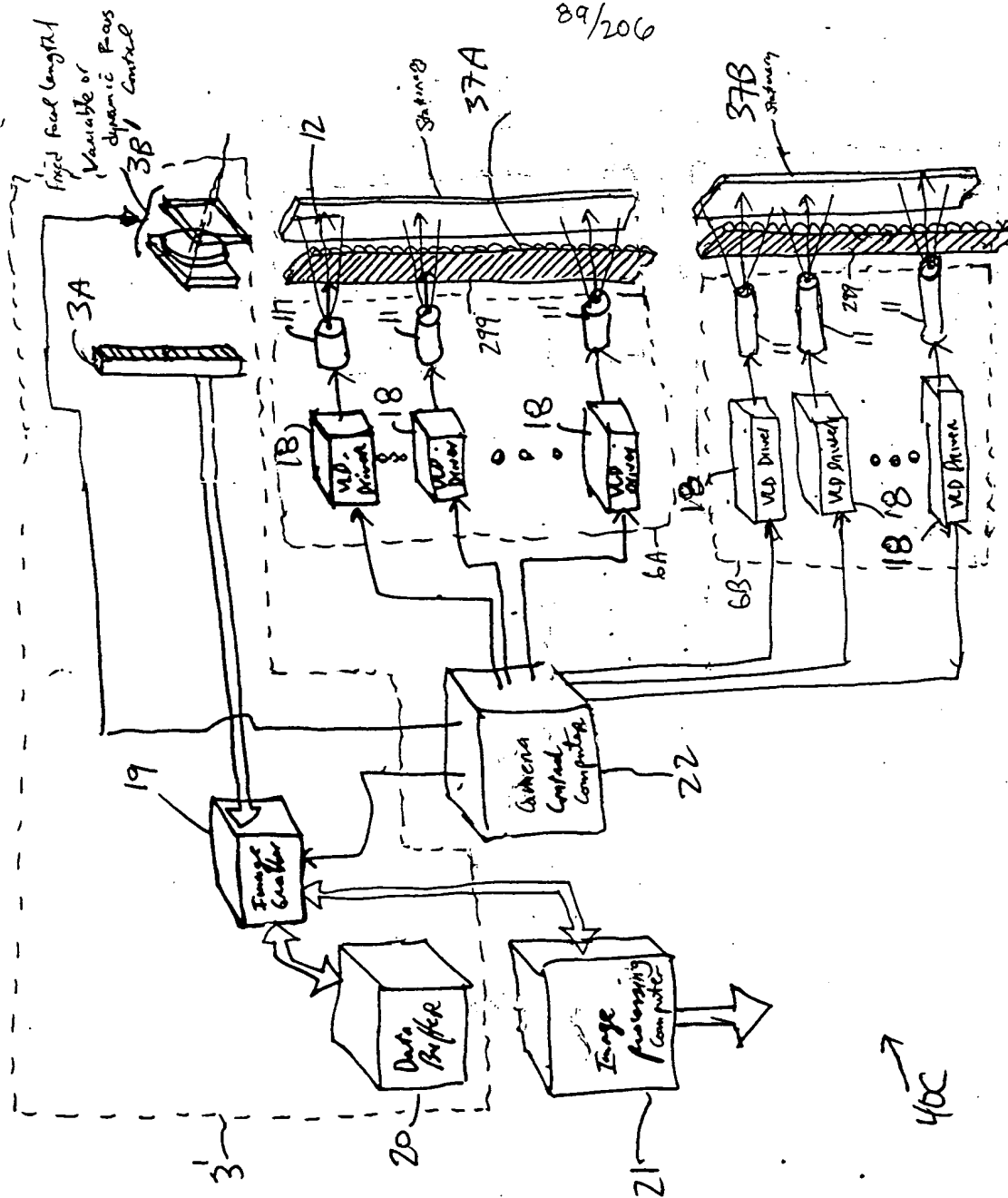


FIG. 2E2

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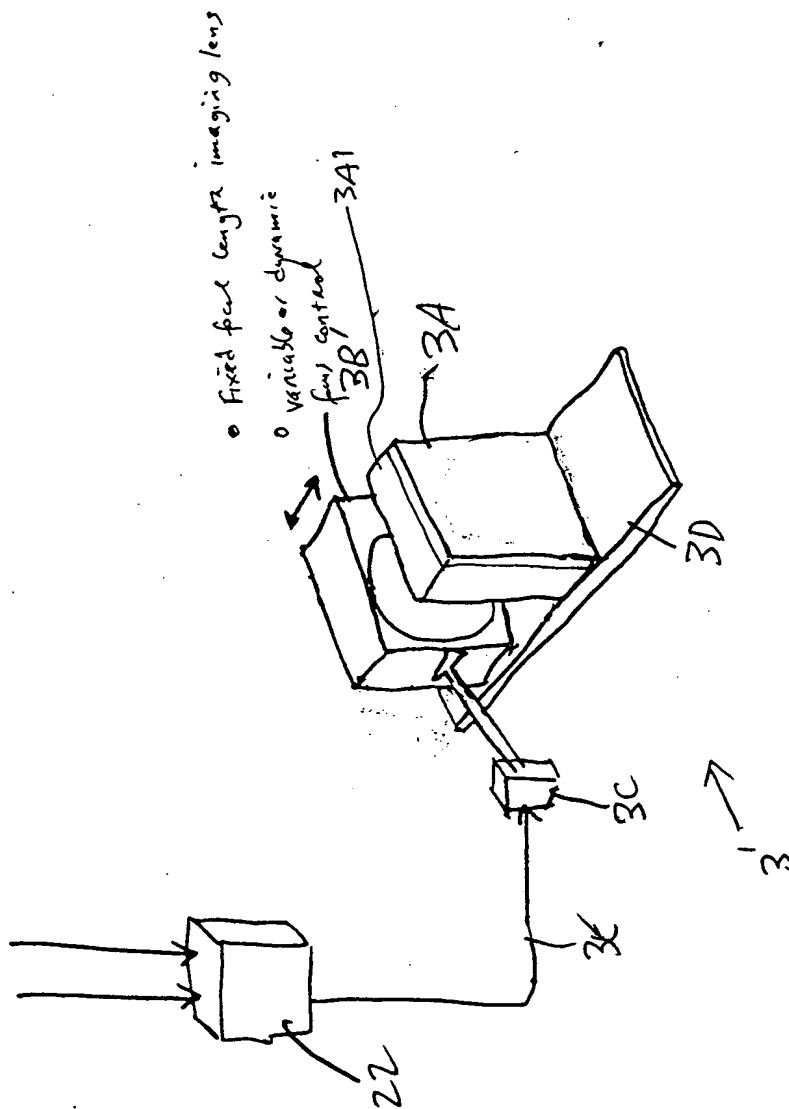


FIG. 2E3

Country	Year	Value	Unit
Algeria	1990	1.00	kg
Algeria	1991	1.00	kg
Algeria	1992	1.00	kg
Algeria	1993	1.00	kg
Algeria	1994	1.00	kg
Algeria	1995	1.00	kg
Algeria	1996	1.00	kg
Algeria	1997	1.00	kg
Algeria	1998	1.00	kg
Algeria	1999	1.00	kg
Algeria	2000	1.00	kg
Algeria	2001	1.00	kg
Algeria	2002	1.00	kg
Algeria	2003	1.00	kg
Algeria	2004	1.00	kg
Algeria	2005	1.00	kg
Algeria	2006	1.00	kg
Algeria	2007	1.00	kg
Algeria	2008	1.00	kg
Algeria	2009	1.00	kg
Algeria	2010	1.00	kg
Algeria	2011	1.00	kg
Algeria	2012	1.00	kg
Algeria	2013	1.00	kg
Algeria	2014	1.00	kg
Algeria	2015	1.00	kg
Algeria	2016	1.00	kg
Algeria	2017	1.00	kg
Algeria	2018	1.00	kg
Algeria	2019	1.00	kg
Algeria	2020	1.00	kg
Algeria	2021	1.00	kg
Algeria	2022	1.00	kg
Algeria	2023	1.00	kg
Algeria	2024	1.00	kg
Algeria	2025	1.00	kg
Algeria	2026	1.00	kg
Algeria	2027	1.00	kg
Algeria	2028	1.00	kg
Algeria	2029	1.00	kg
Algeria	2030	1.00	kg
Algeria	2031	1.00	kg
Algeria	2032	1.00	kg
Algeria	2033	1.00	kg
Algeria	2034	1.00	kg
Algeria	2035	1.00	kg
Algeria	2036	1.00	kg
Algeria	2037	1.00	kg
Algeria	2038	1.00	kg
Algeria	2039	1.00	kg
Algeria	2040	1.00	kg
Algeria	2041	1.00	kg
Algeria	2042	1.00	kg
Algeria	2043	1.00	kg
Algeria	2044	1.00	kg
Algeria	2045	1.00	kg
Algeria	2046	1.00	kg
Algeria	2047	1.00	kg
Algeria	2048	1.00	kg
Algeria	2049	1.00	kg
Algeria	2050	1.00	kg
Algeria	2051	1.00	kg
Algeria	2052	1.00	kg
Algeria	2053	1.00	kg
Algeria	2054	1.00	kg
Algeria	2055	1.00	kg
Algeria	2056	1.00	kg
Algeria	2057	1.00	kg
Algeria	2058	1.00	kg
Algeria	2059	1.00	kg
Algeria	2060	1.00	kg
Algeria	2061	1.00	kg
Algeria	2062	1.00	kg
Algeria	2063	1.00	kg
Algeria	2064	1.00	kg
Algeria	2065	1.00	kg
Algeria	2066	1.00	kg
Algeria	2067	1.00	kg
Algeria	2068	1.00	kg
Algeria	2069	1.00	kg
Algeria	2070	1.00	kg
Algeria	2071	1.00	kg
Algeria	2072	1.00	kg
Algeria	2073	1.00	kg
Algeria	2074	1.00	kg
Algeria	2075	1.00	kg
Algeria	2076	1.00	kg
Algeria	2077	1.00	kg
Algeria	2078	1.00	kg
Algeria	2079	1.00	kg
Algeria	2080	1.00	kg
Algeria	2081	1.00	kg
Algeria	2082	1.00	kg
Algeria	2083	1.00	kg

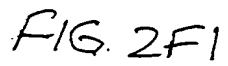
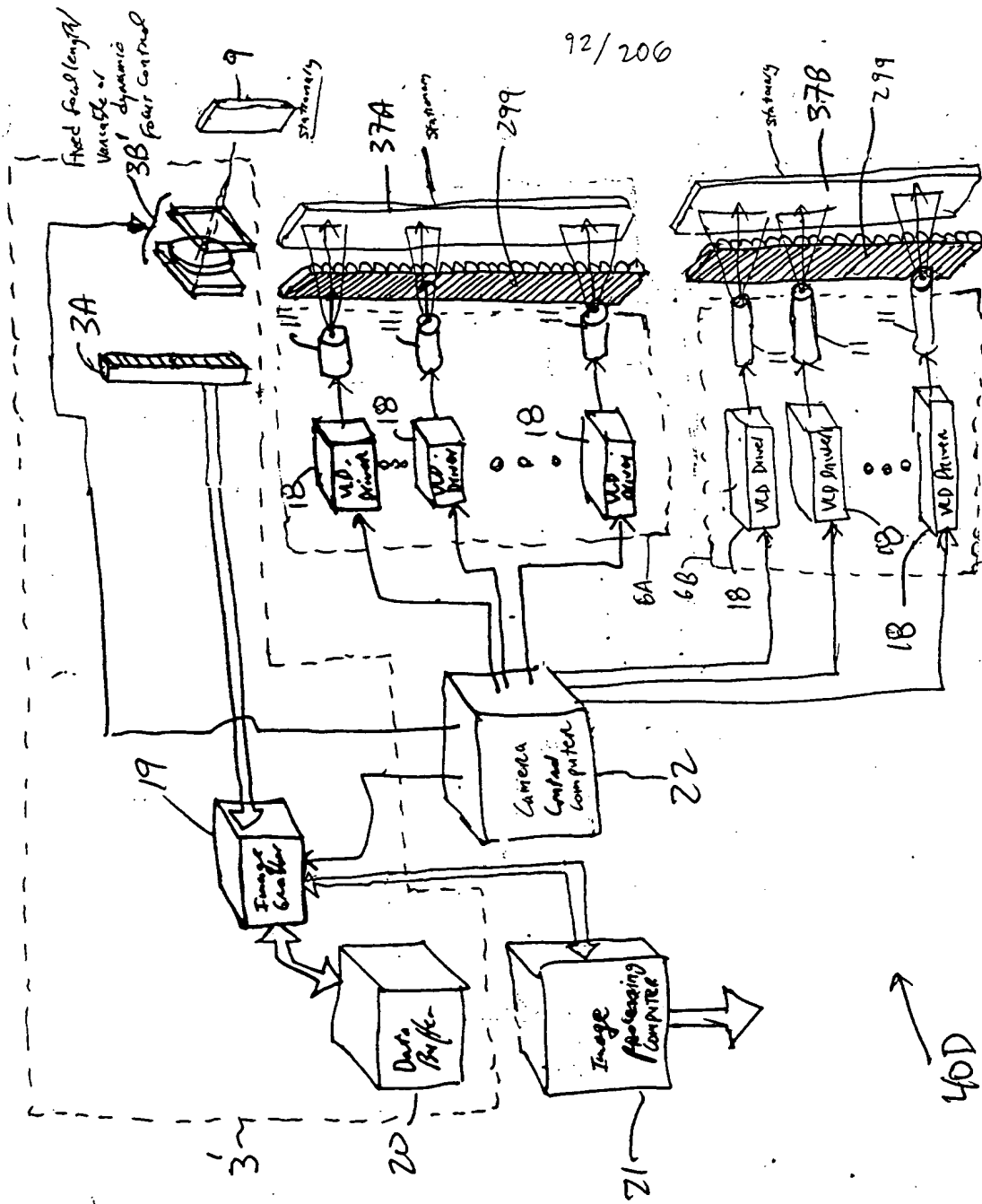


FIG. 2F1



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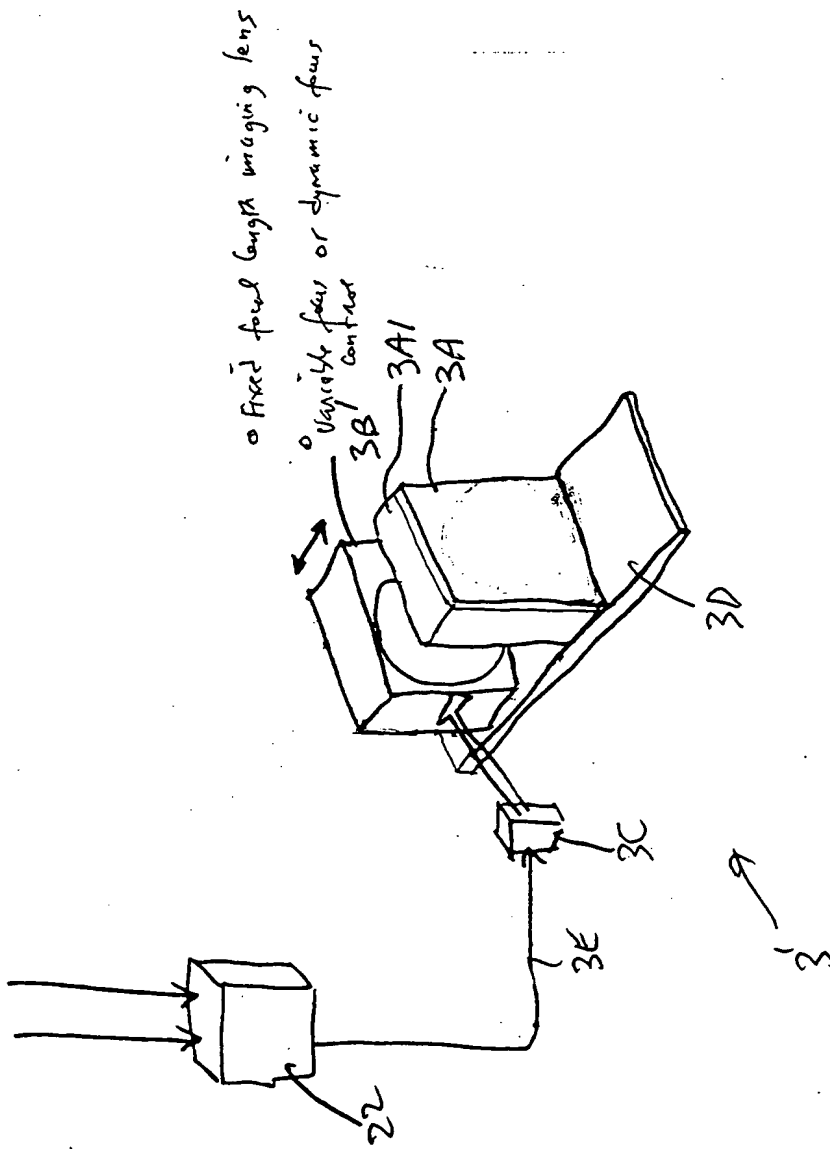


FIG. 2F3

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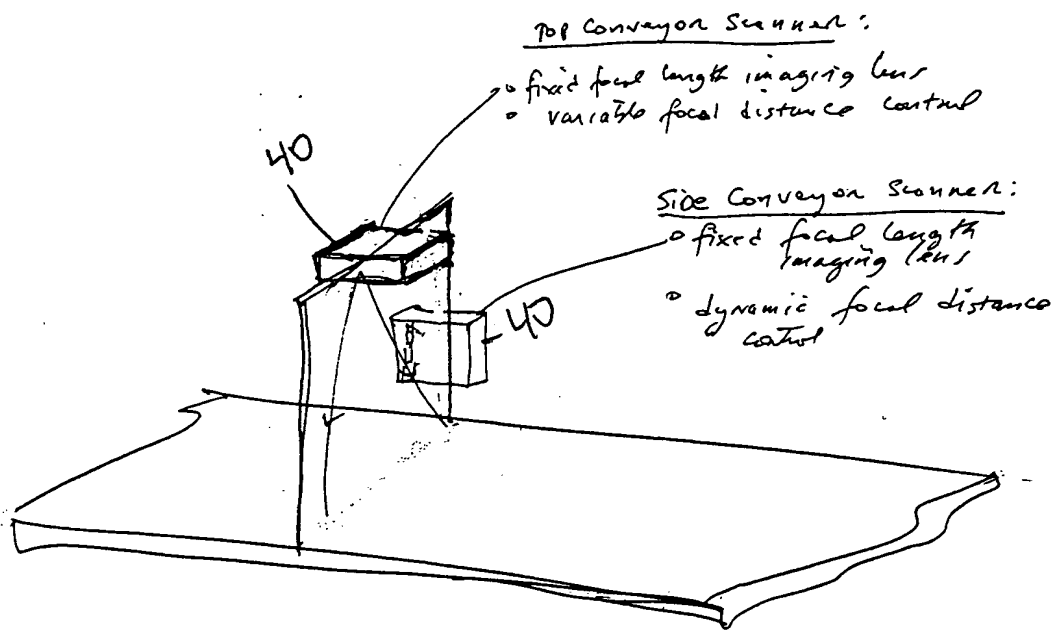


FIG. 2G

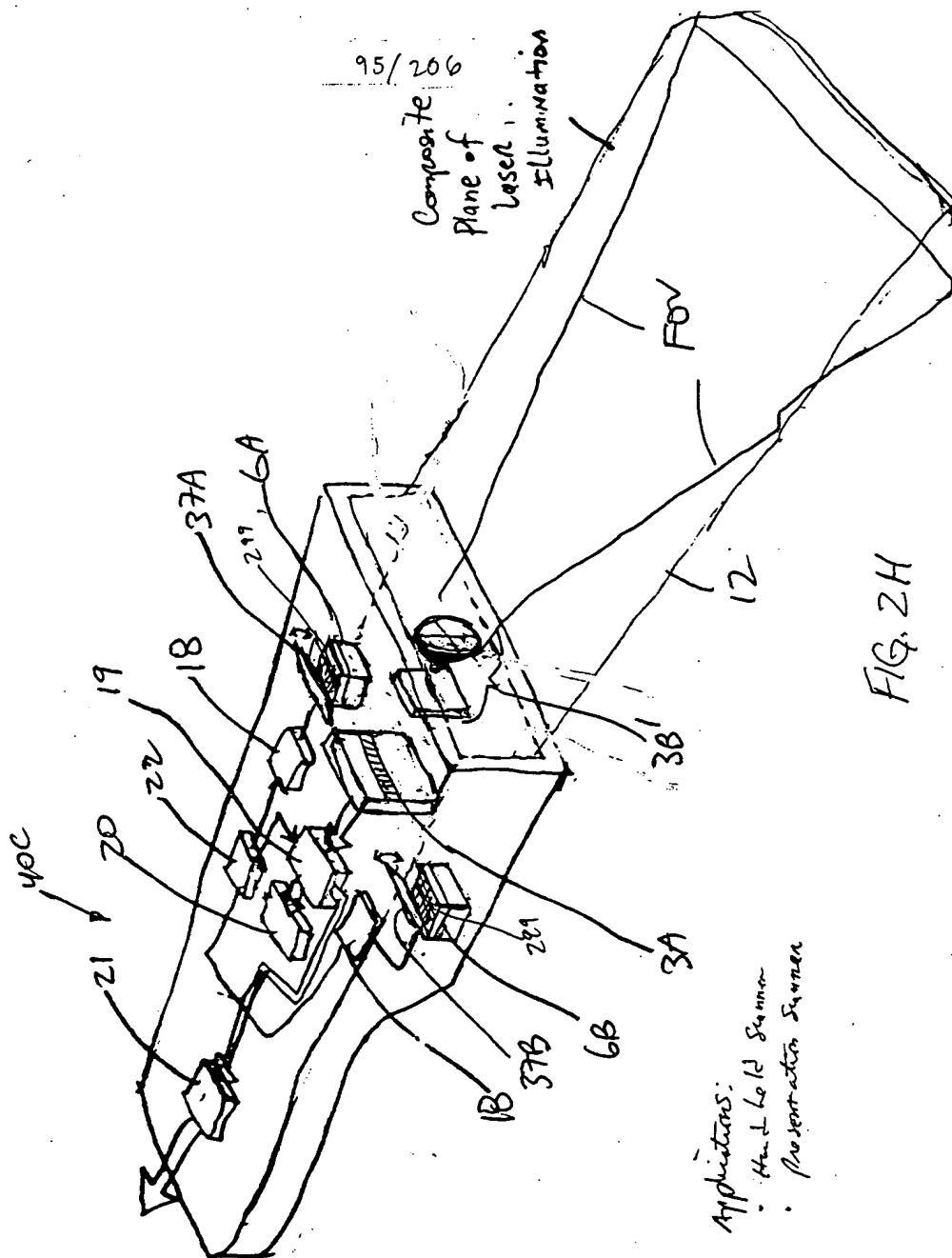


FIG. 2H

Applications:
 • The L-1011 System
 • Presentation System

60

1

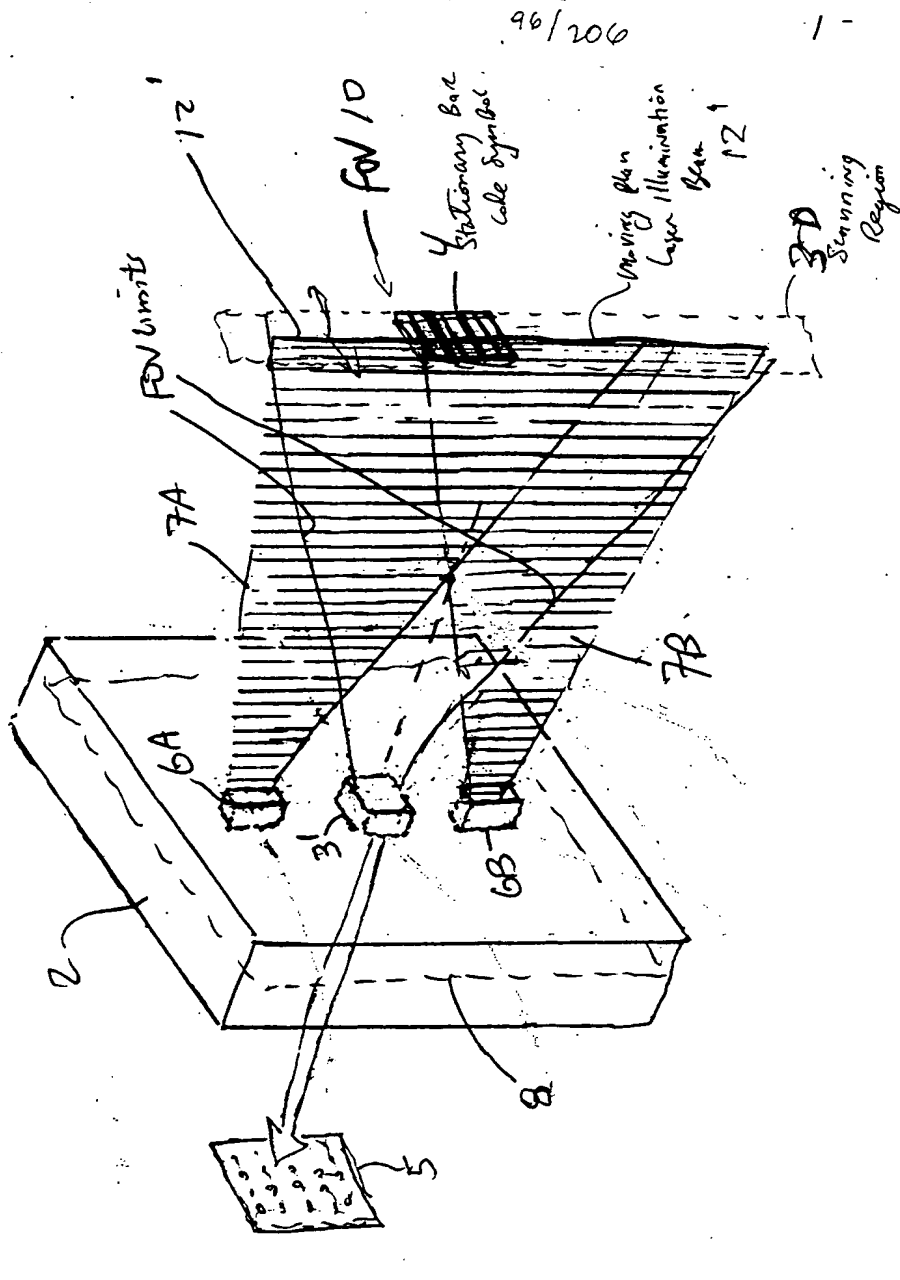
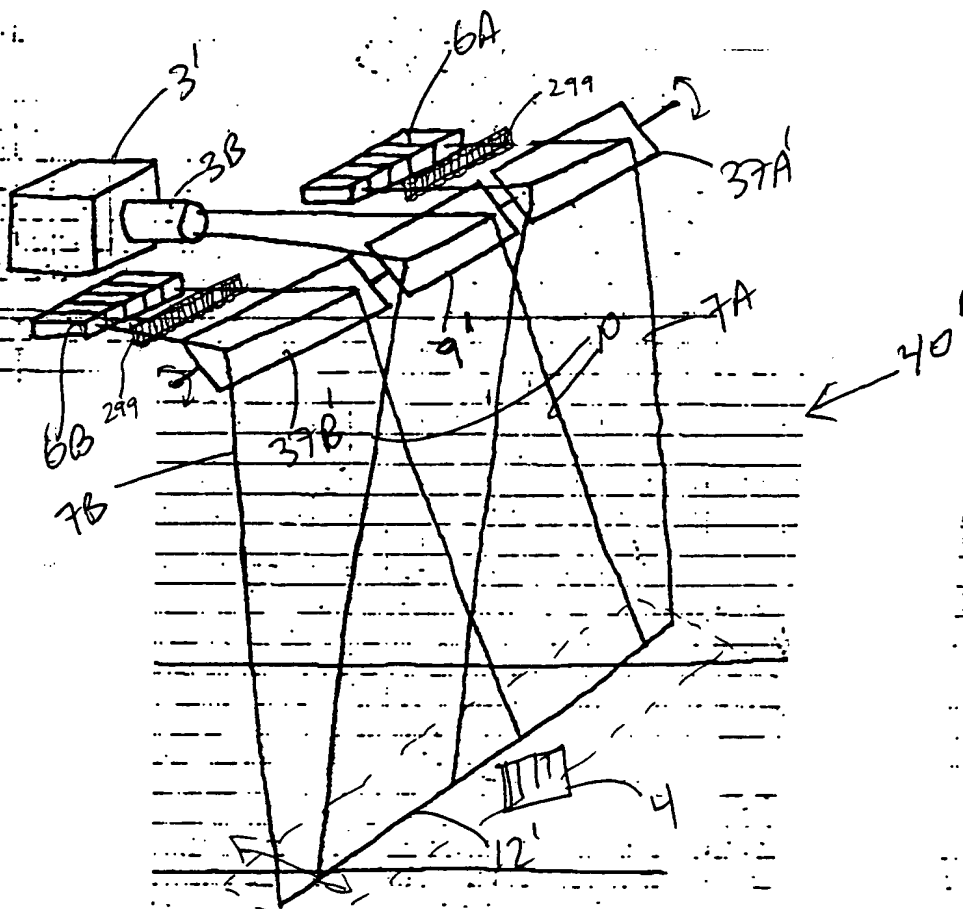


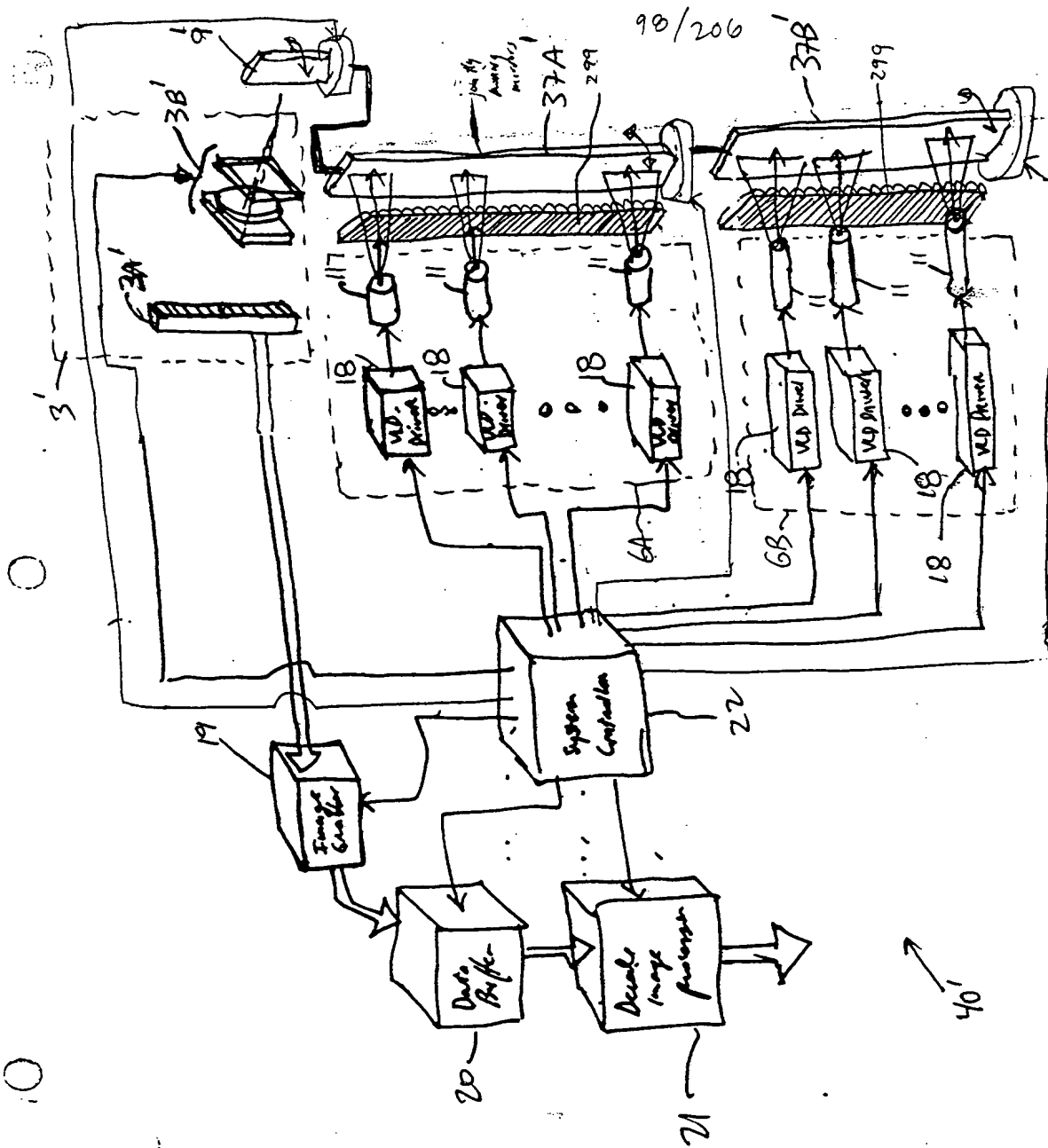
FIG. 2II

00003430 440004

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3-D Scanning Region
FIG 2I2



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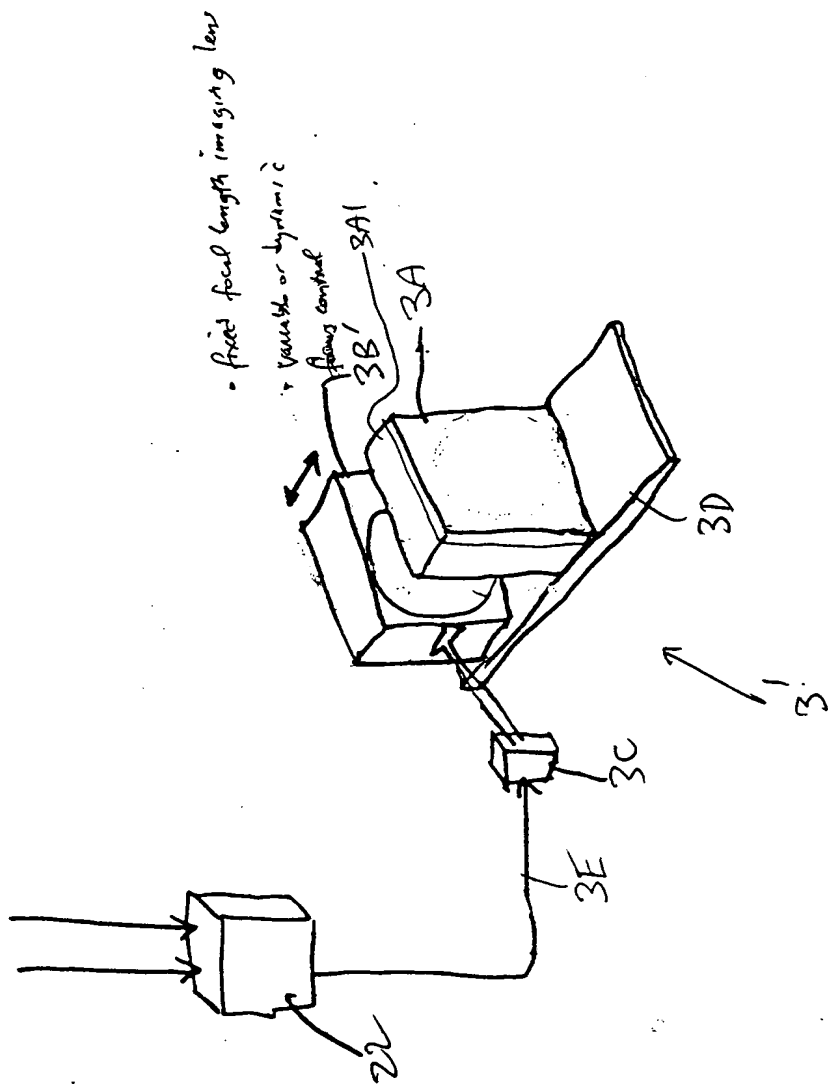
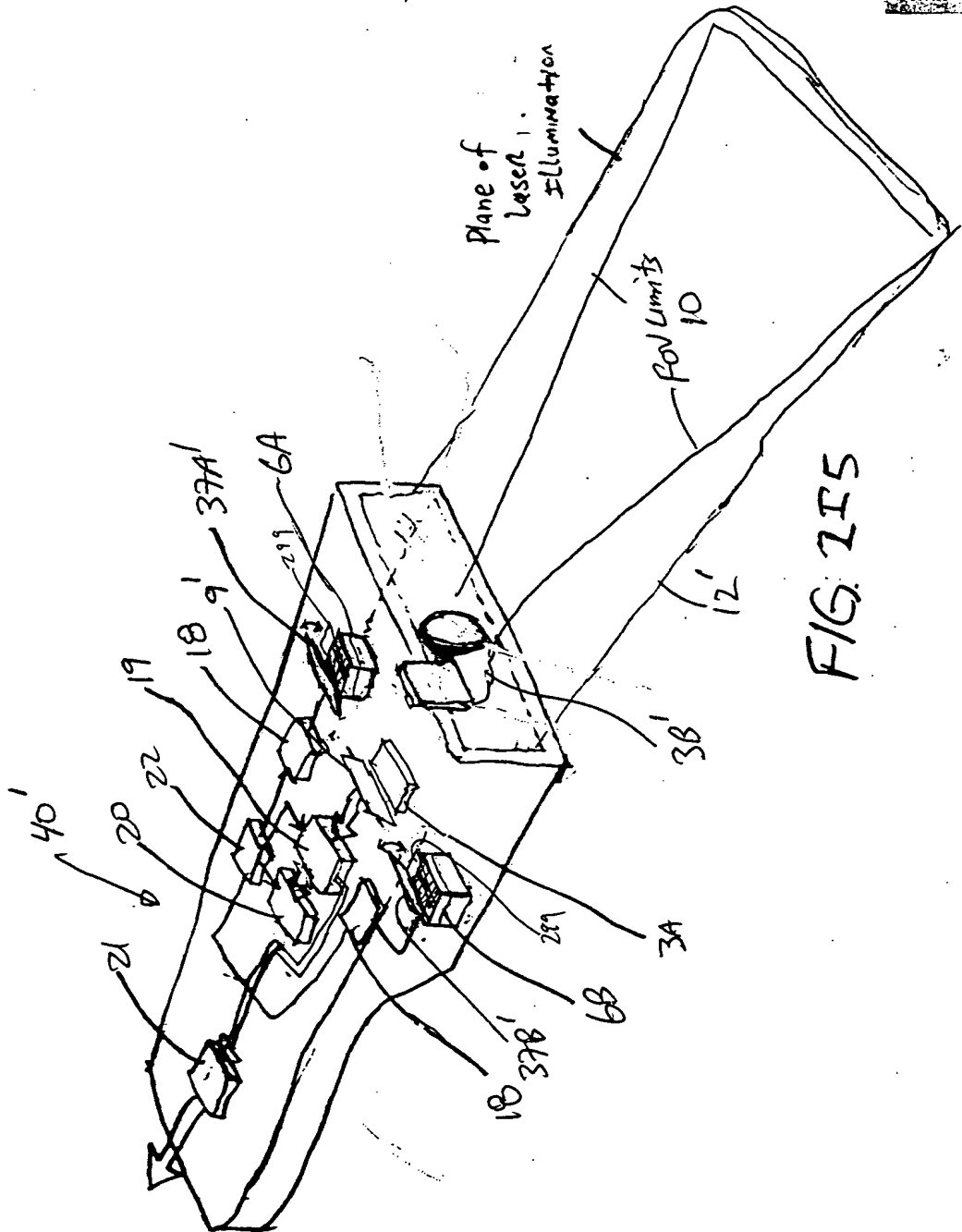


FIG. 2I4

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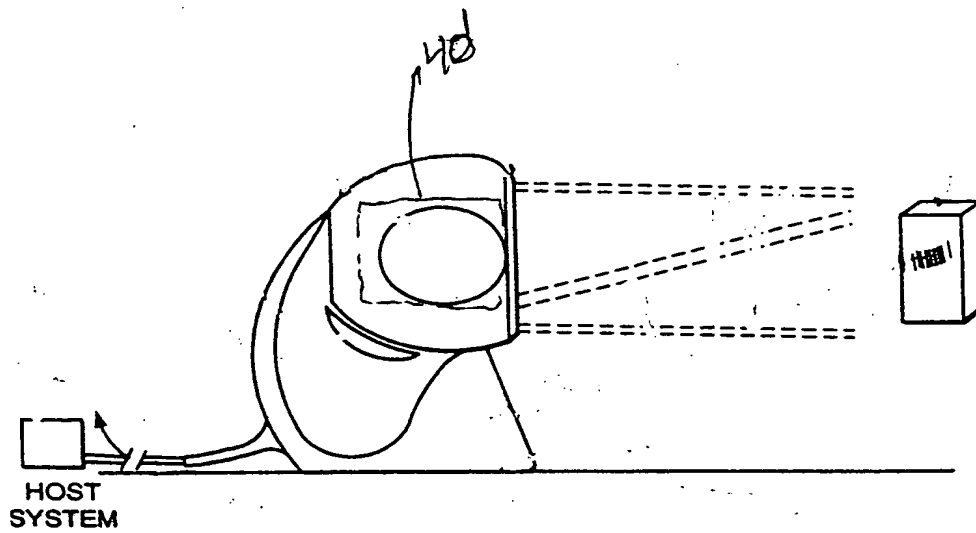


FIG. 2I6

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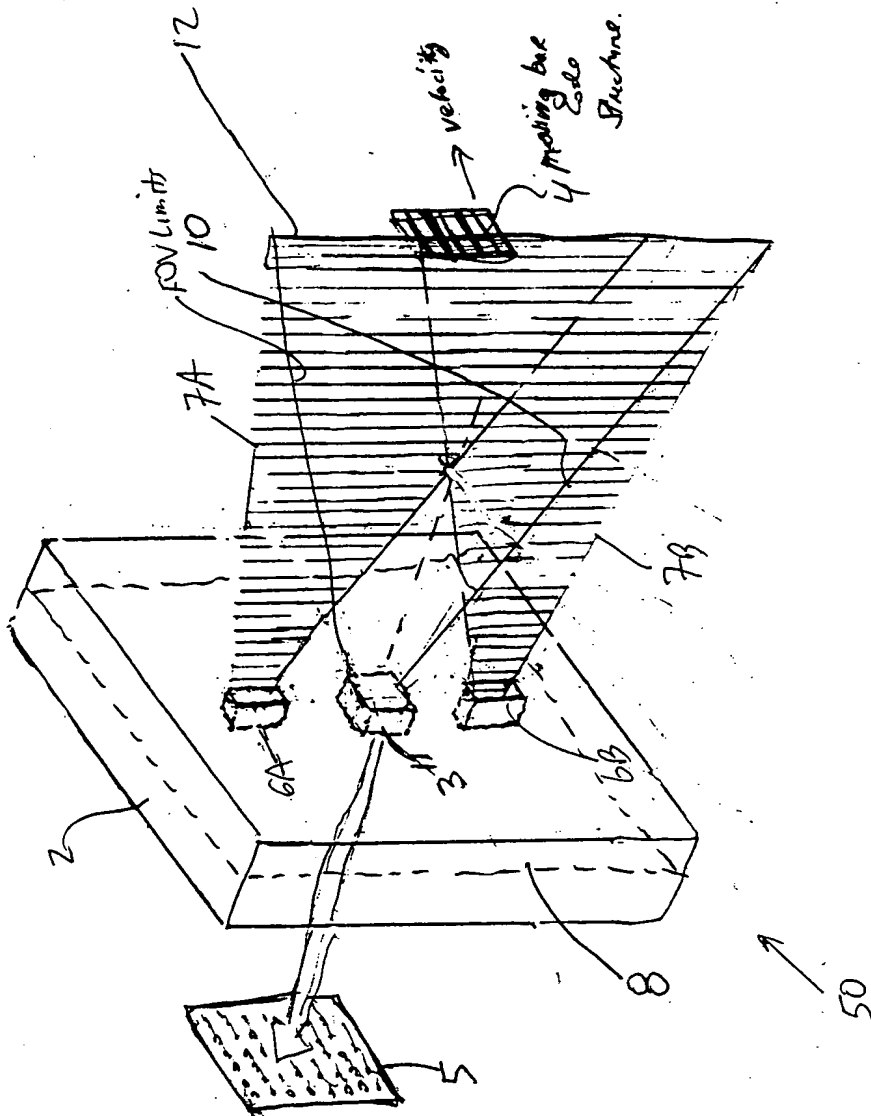


FIG 3A

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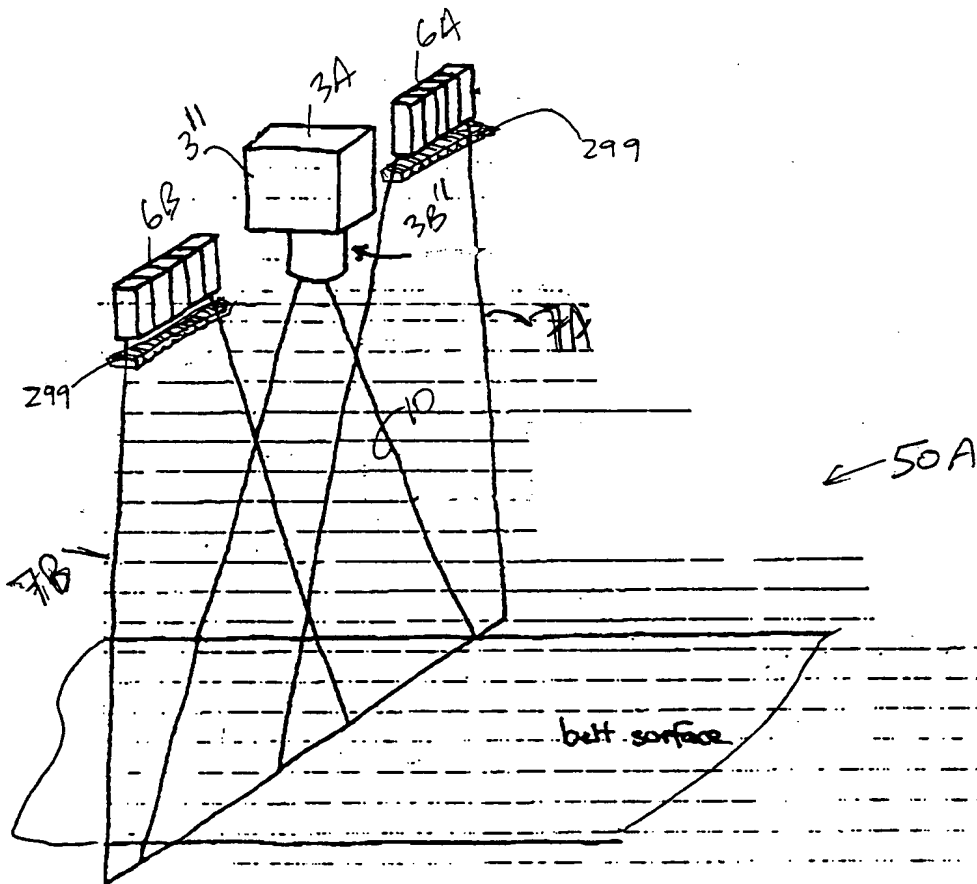


FIG. 3B1

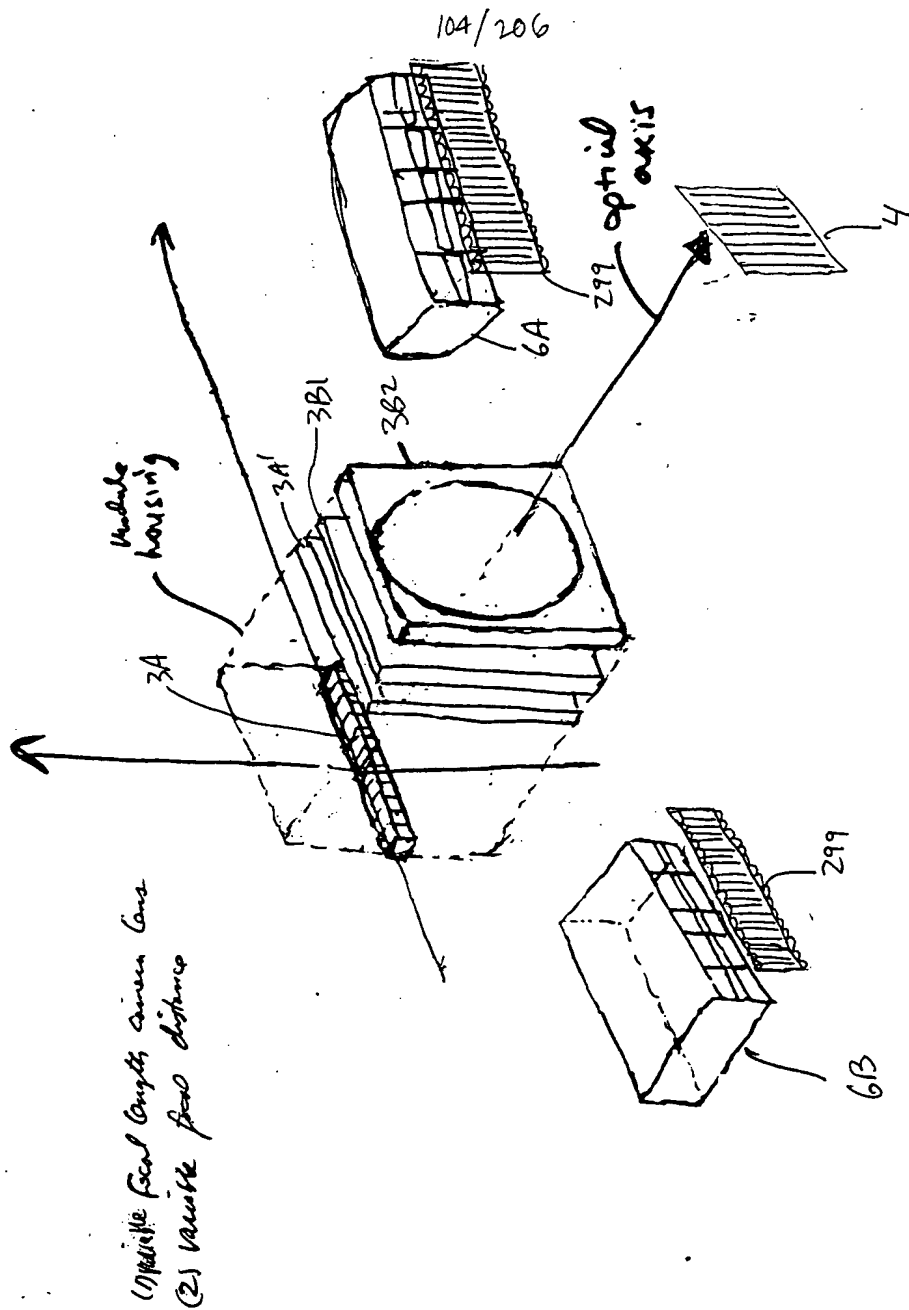


FIG. 3B2

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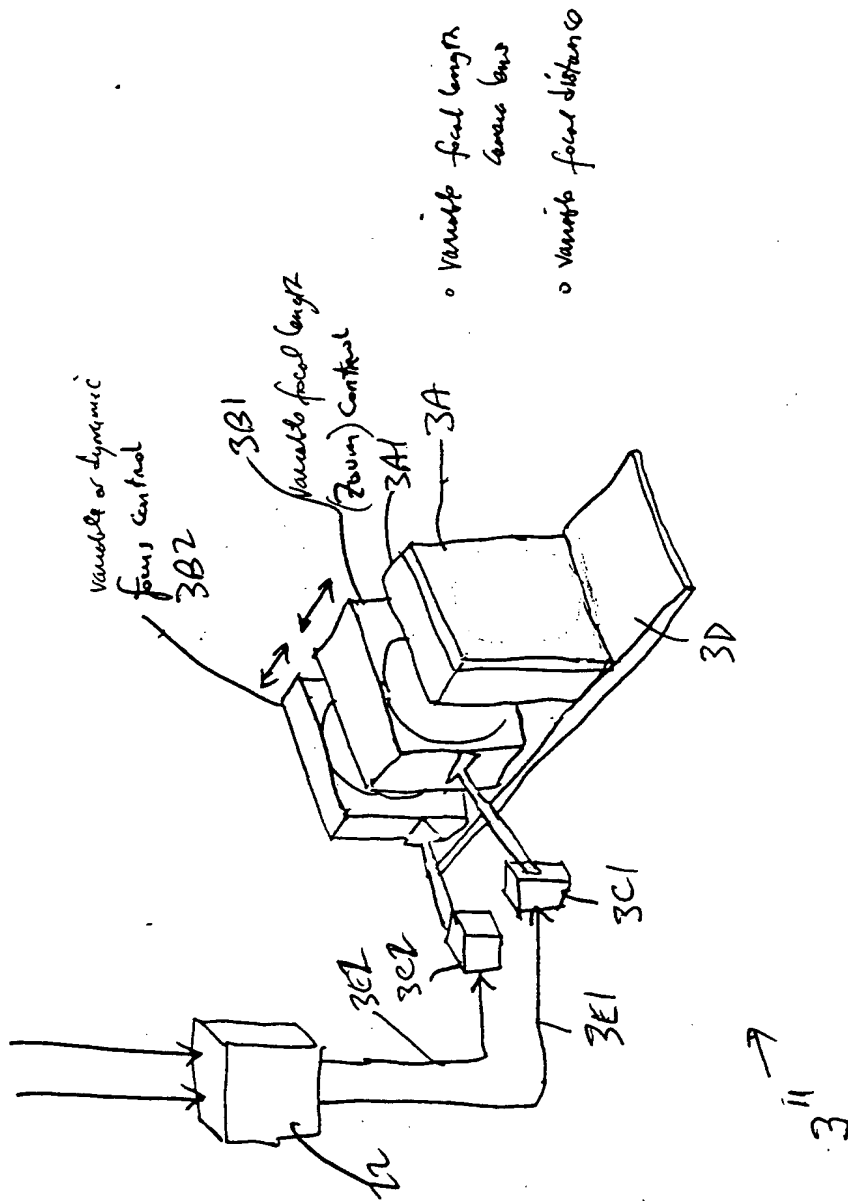
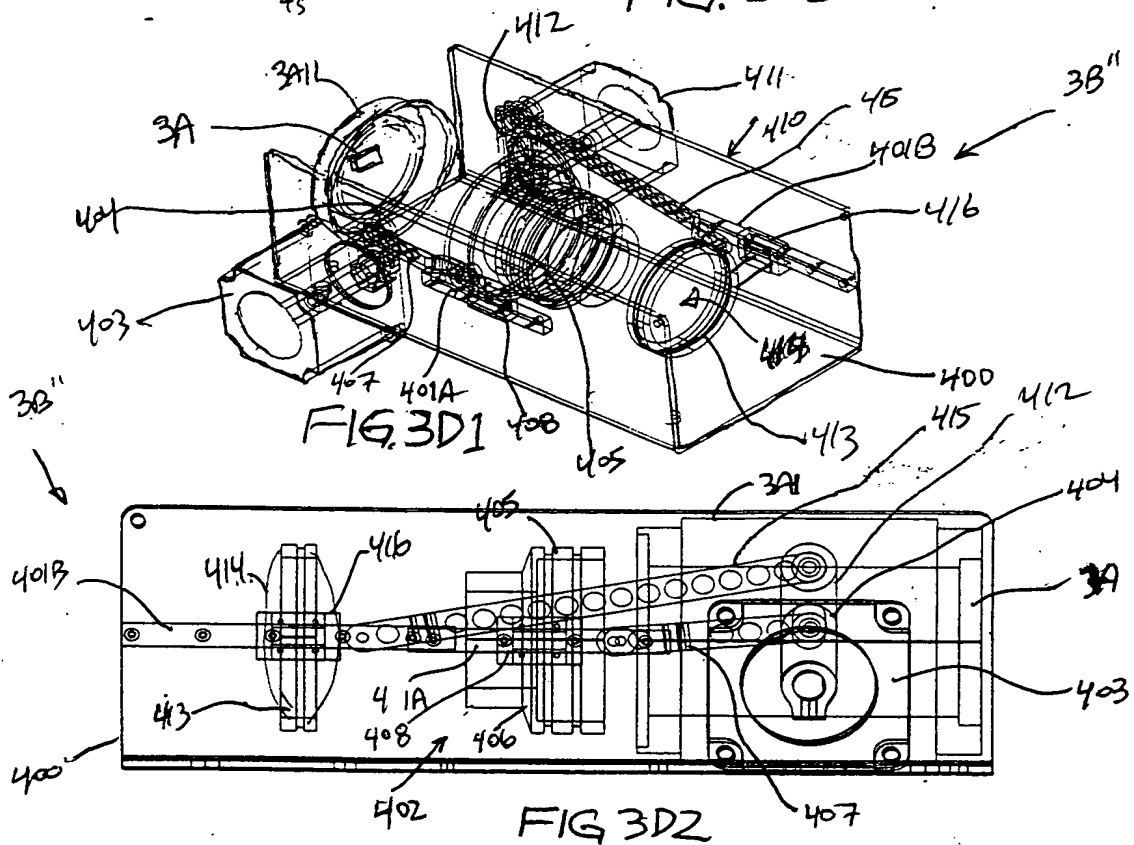
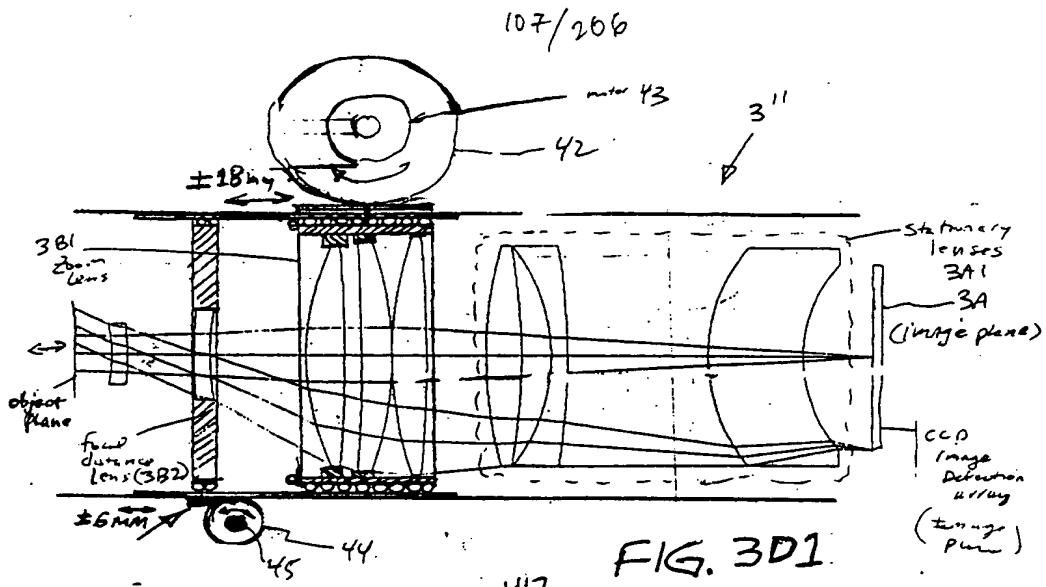


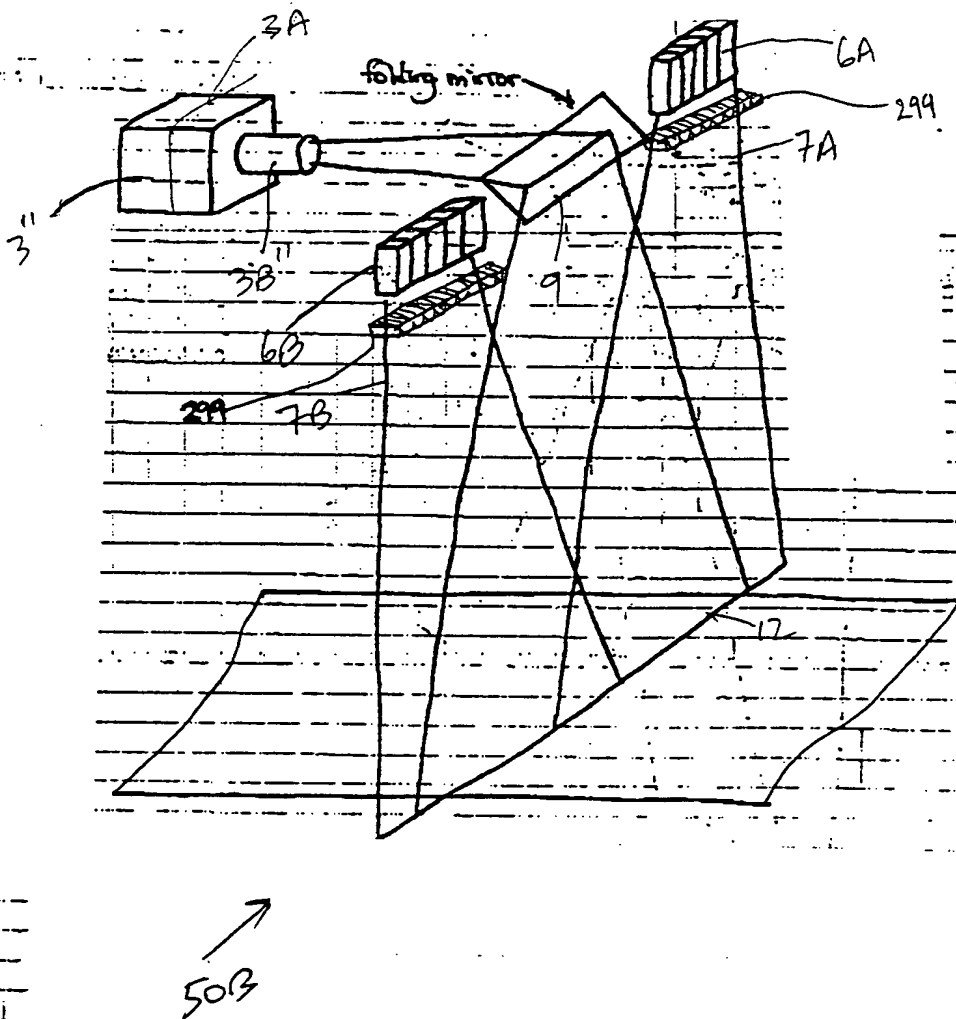
FIG. 3CZ

00000430.116604



03883430 112604

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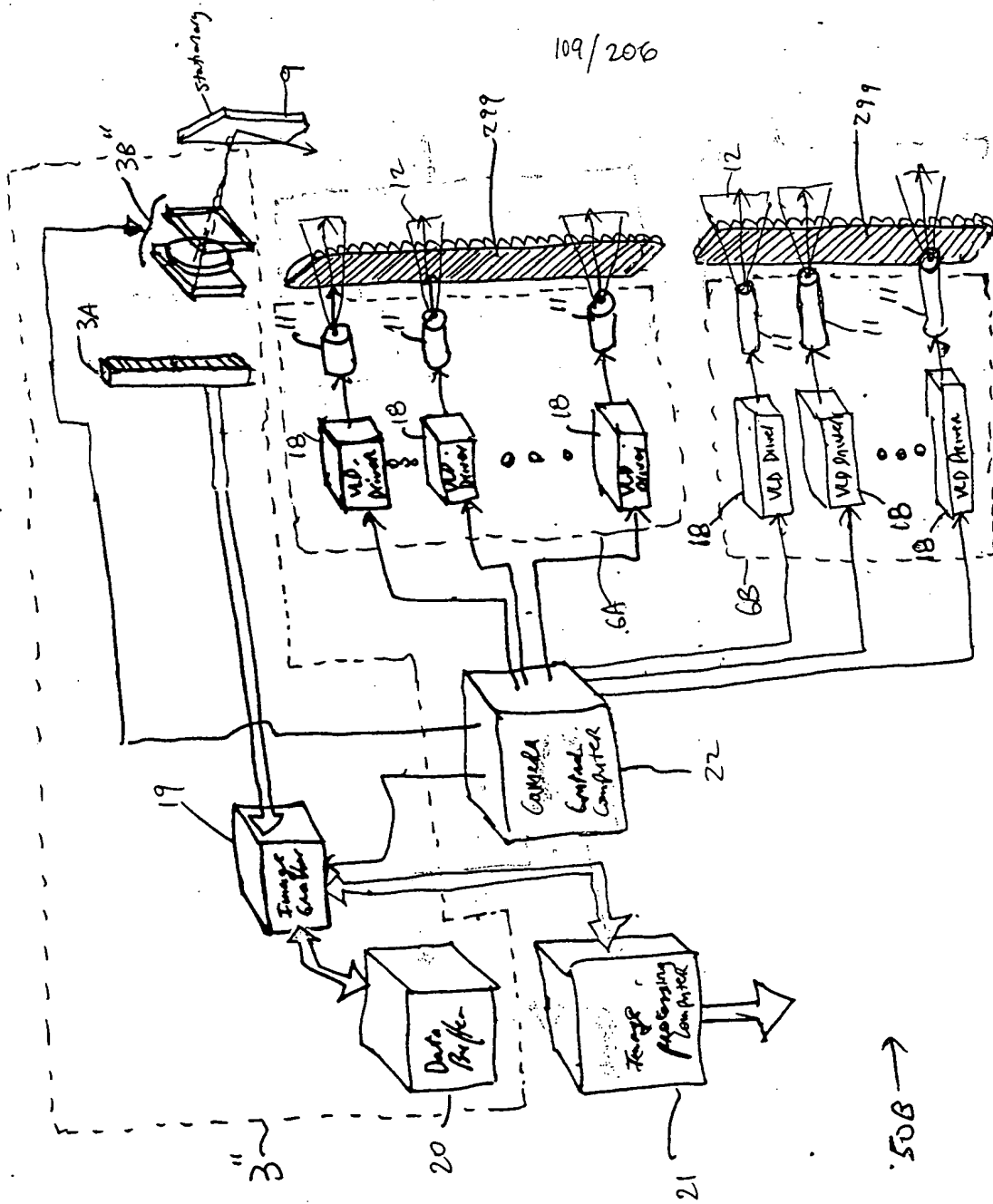


FIG. 3E2

508 →

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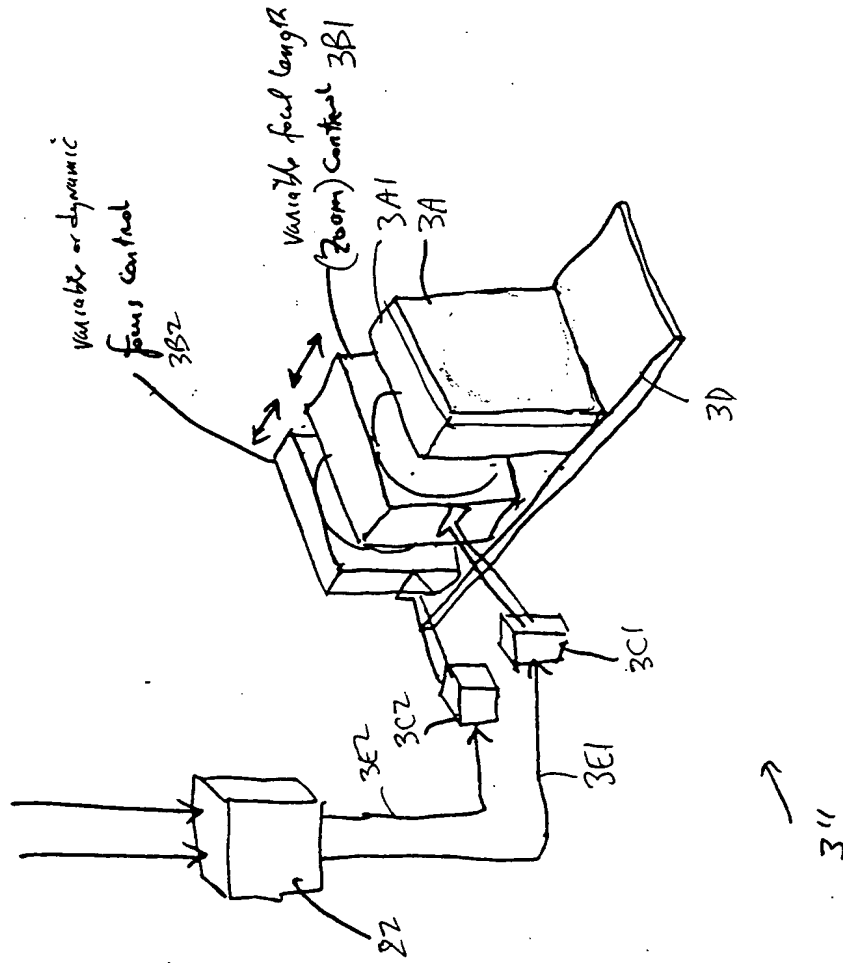


FIG. 3E3

09080430 44001

111/206

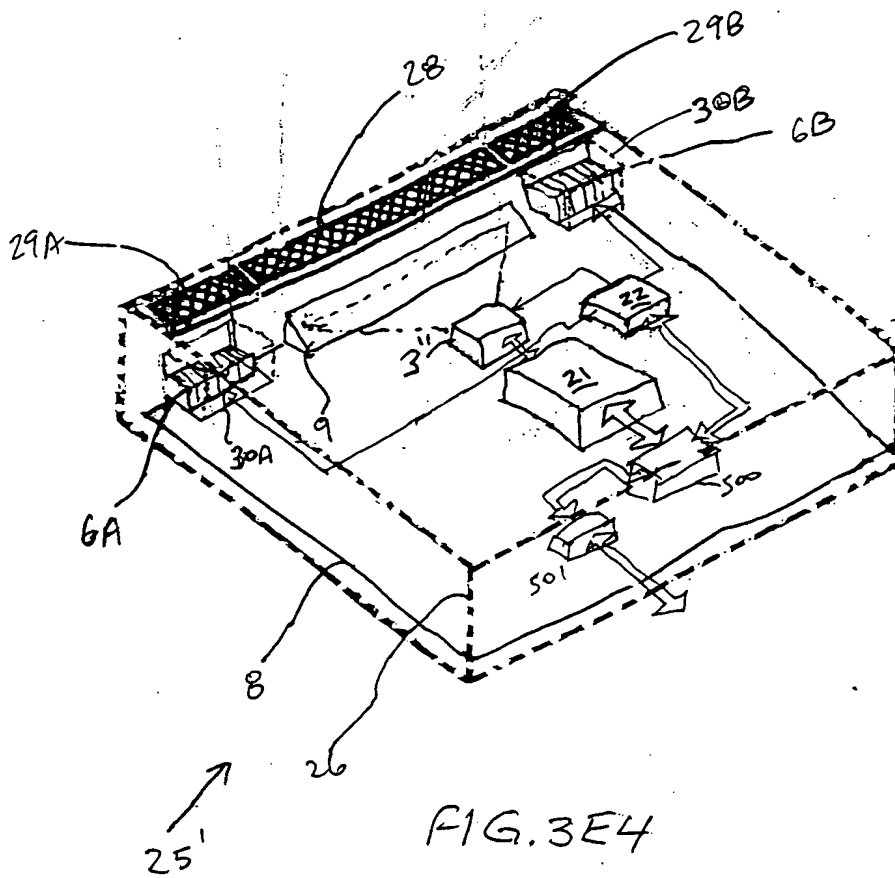


FIG. 3E4

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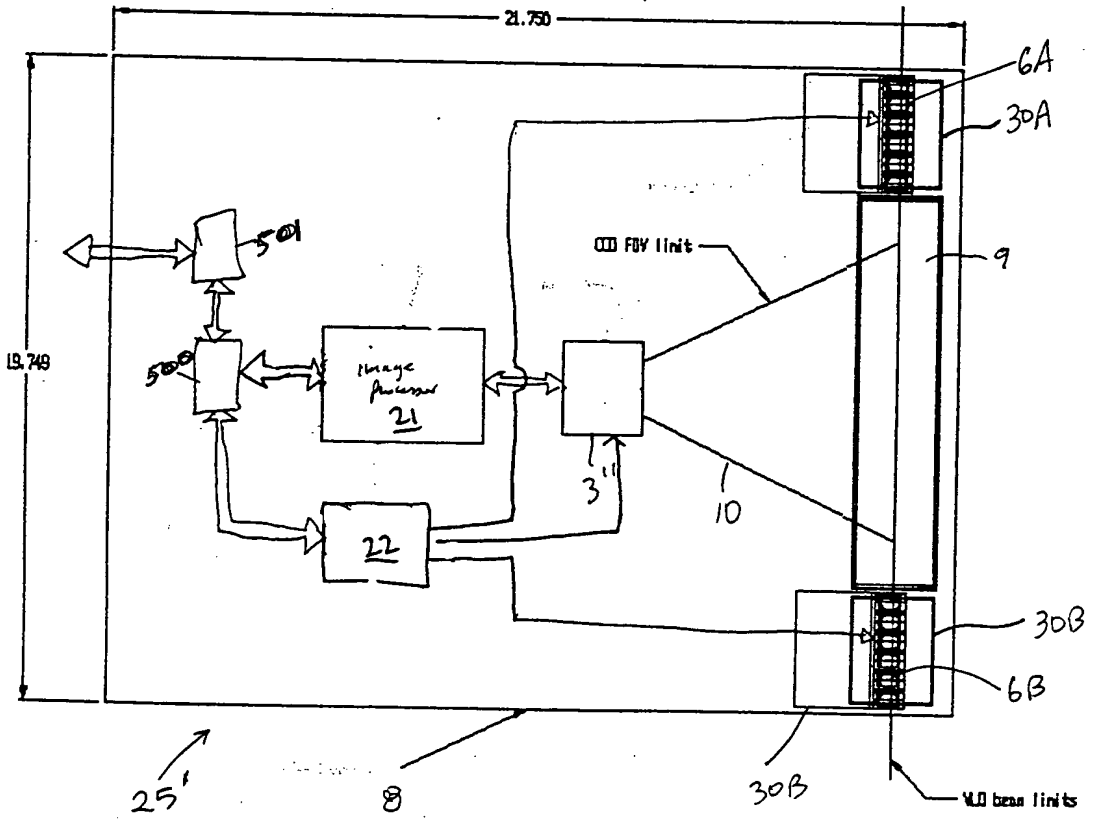


FIG. 3E5

113/206

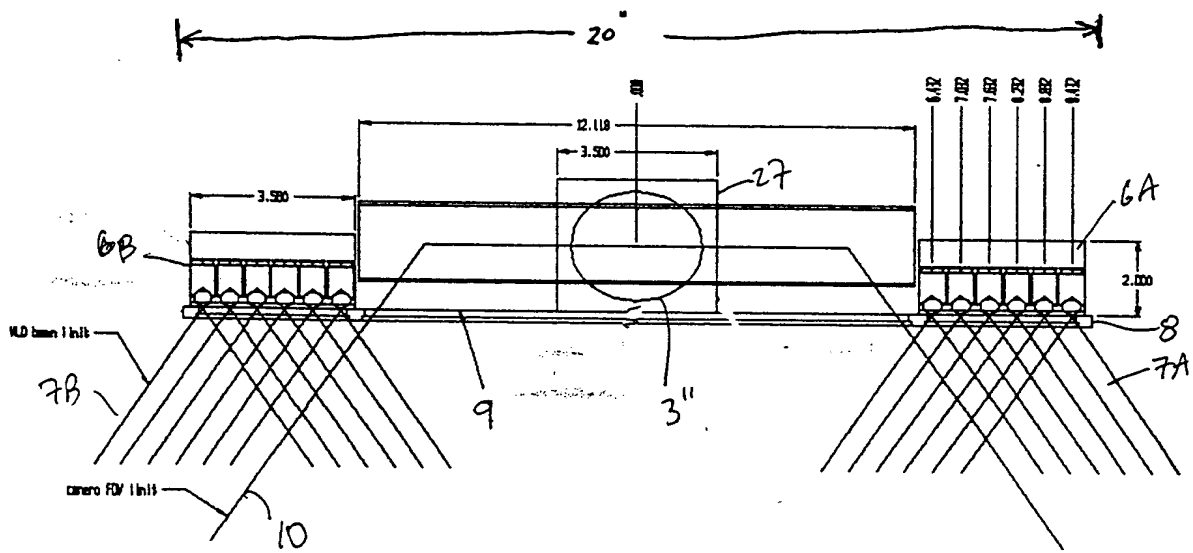


FIG. 3E6

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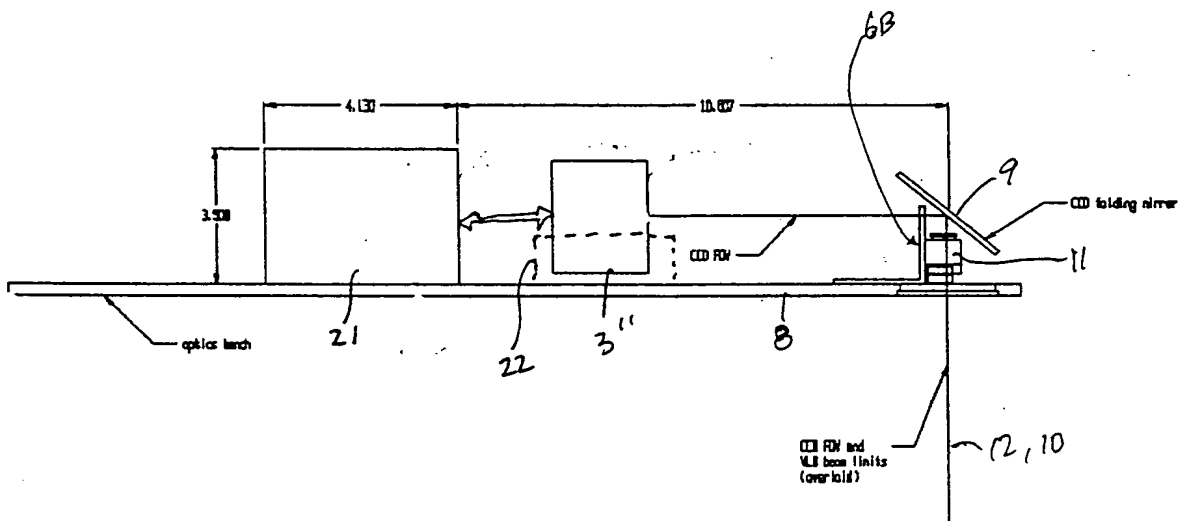


FIG. 3E7

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*Variable FOV

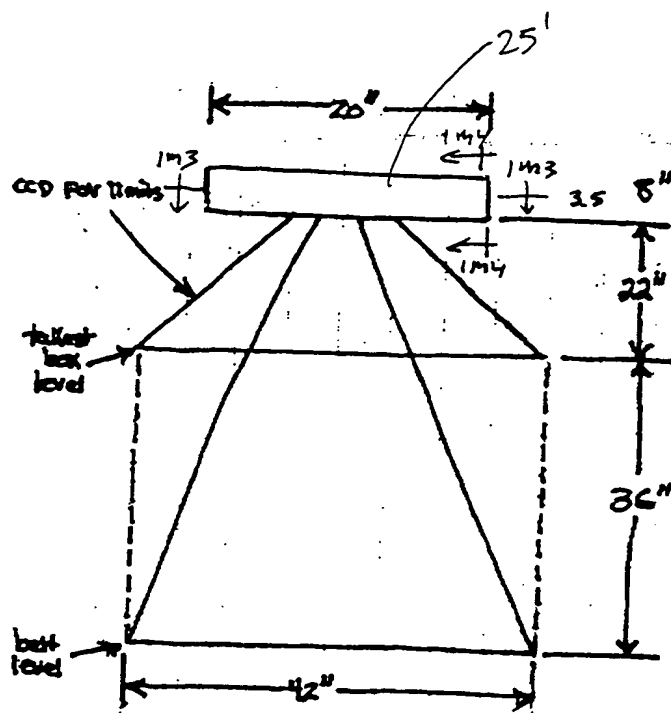


FIG. 3E8

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	2110	2111	2112	2113	2114	2115	2116	2117	2118	2119	2120	2121	2122	2123	2124	2125	2126	2127	2128	2129	2130	2131	2132	2133	2134	2135	2136	2137	2138	2139	2140	2141	2142	2143	2144	2145	2146	2147	2148	2149	2150	2151	2152	2153	2154	2155	2156	2157	2158	2159	2160	2161	2162	2163	2164	2165	2166	2167	2168	2169	2170	2171	2172	2173	2174	2175	2176	2177	2178	2179	2180	2181	2182	2183	2184	2185	2186	2187	2188	2189	2190	2191	2192	2193	2194	2195	2196	2197	2198	2199	2200	2201	2202	2203	2204	2205	2206	2207	2208	2209	2210	2211	2212	2213	2214	2215	2216	2217	2218	2219	2220	2221	2222	2223	2224	2225	2226	2227	2228	2229	2230	2231	2232	2233	2234	2235	2236	2237	2238	2239	2240	2241	2242	2243	2244	2245	2246	2247	2248	2249	2250	2251	2252	2253	2254	2255	2256	2257	2258	2259	2260	2261	2262	2263	2264	2265	2266	2267	2268	2269	2270	2271	2272	2273	2274	2275	2276	2277	2278	2279	2280	2281	2282	2283	2284	2285	2286	2287	2288	2289	2290	2291	2292	2293	2294	2295	2296	2297	2298	2299	2300	2301	2302	2303	2304	2305	2306	2307	2308	2309	2310	2311	2312	2313	2314	2315	2316	2317	2318	2319	2320	2321	2322	2323	2324	2325	2326	2327	2328	2329	2330	2331	2332	2333	2334	2335	2336	2337	2338	2339	2340	2341	2342	2343	2344	2345	2346	2347	2348	2349	2350	2351	2352	2353	2354	2355	2356	2357	2358	2359	2360	2361	2362	2363	2364	2365	2366	2367	2368	2369	2370	2371	2372	2373	2374	2375	2376	2377	2378	2379	2380	2381	2382	2383	2384	2385	2386	2387	2388	2389	2390	2391	2392	2393	2394	2395	2396	2397	2398	2399	2400	2401	2402	2403	2404	2405	2406	2407	2408	2409	2410	2411	2412	2413	2414	2415	2416	2417	2418	2419	2420	2421	2422	2
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FIG. 3F1

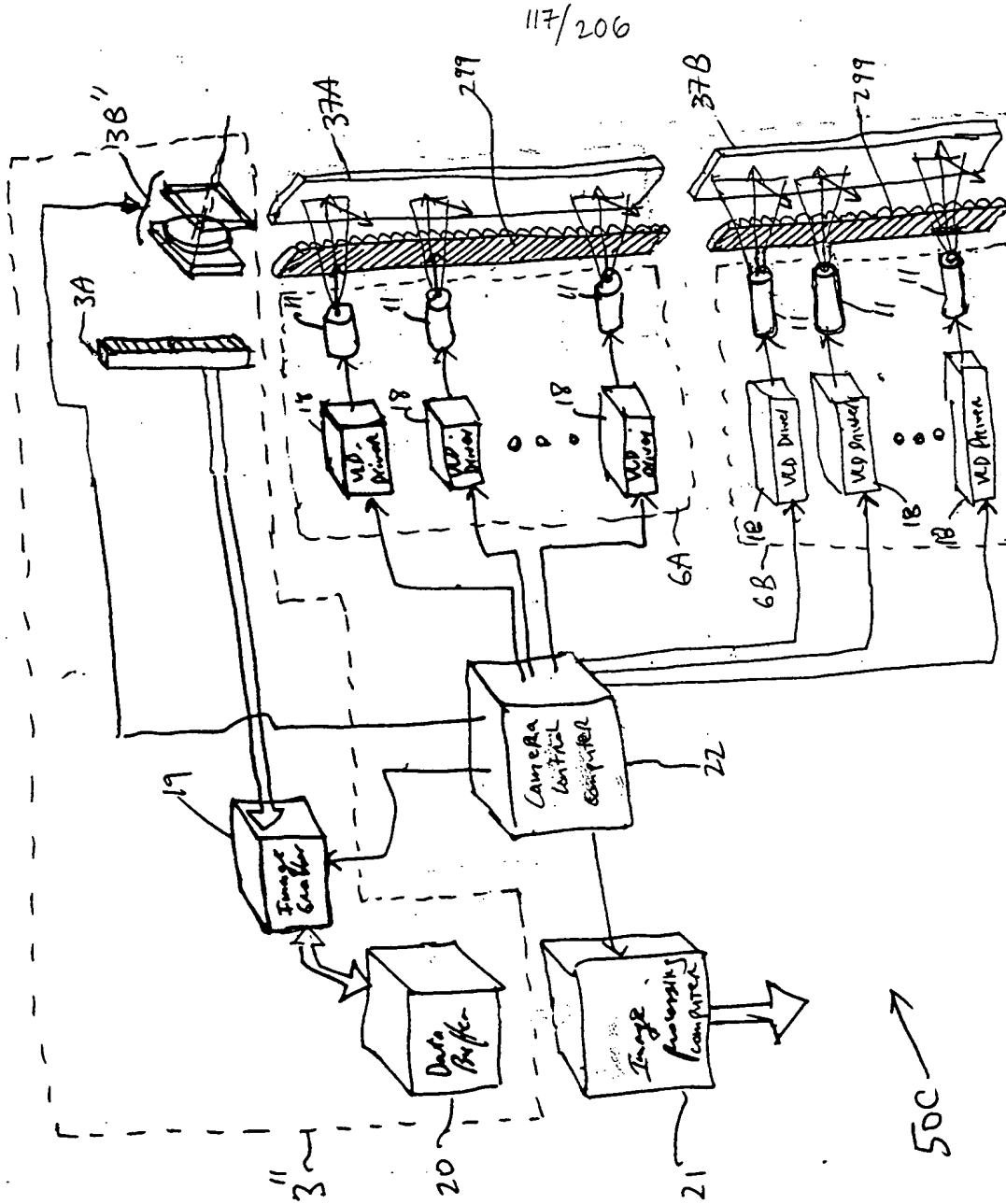


FIG. 3F2

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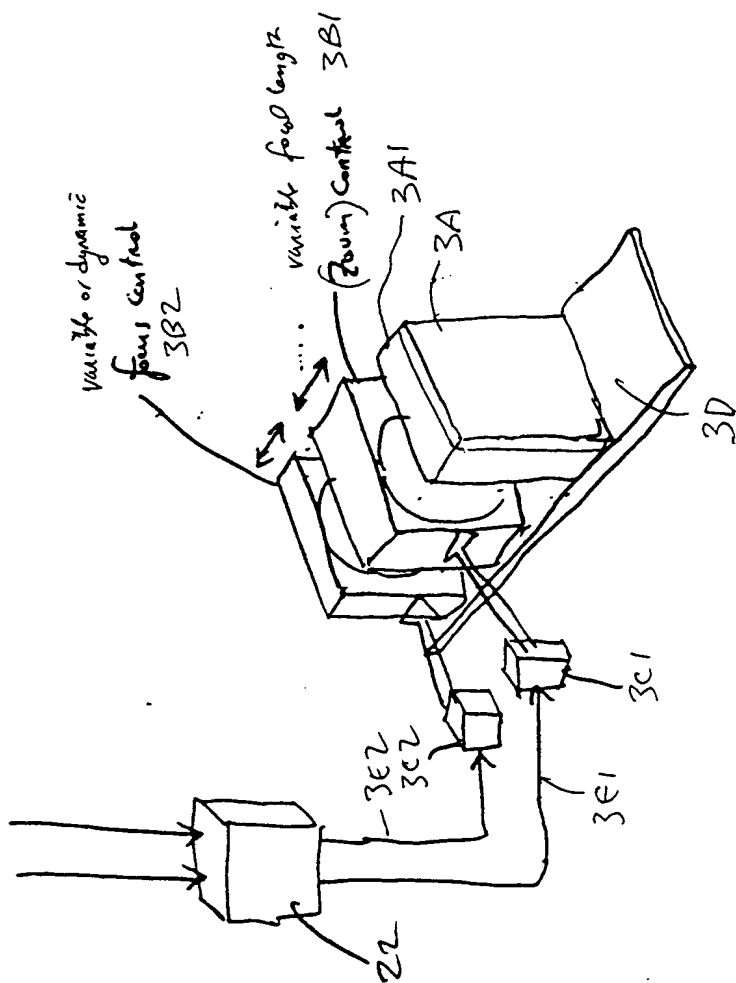


FIG. 3F3

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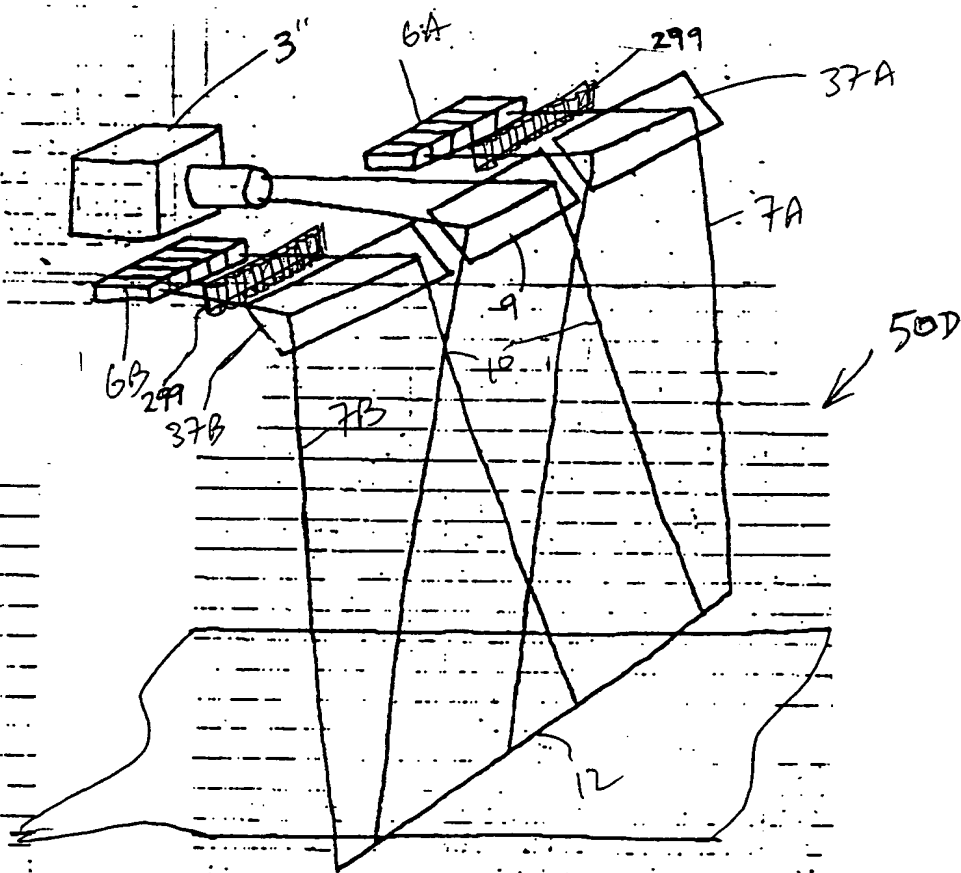


FIG. 3G1

09333130 442604

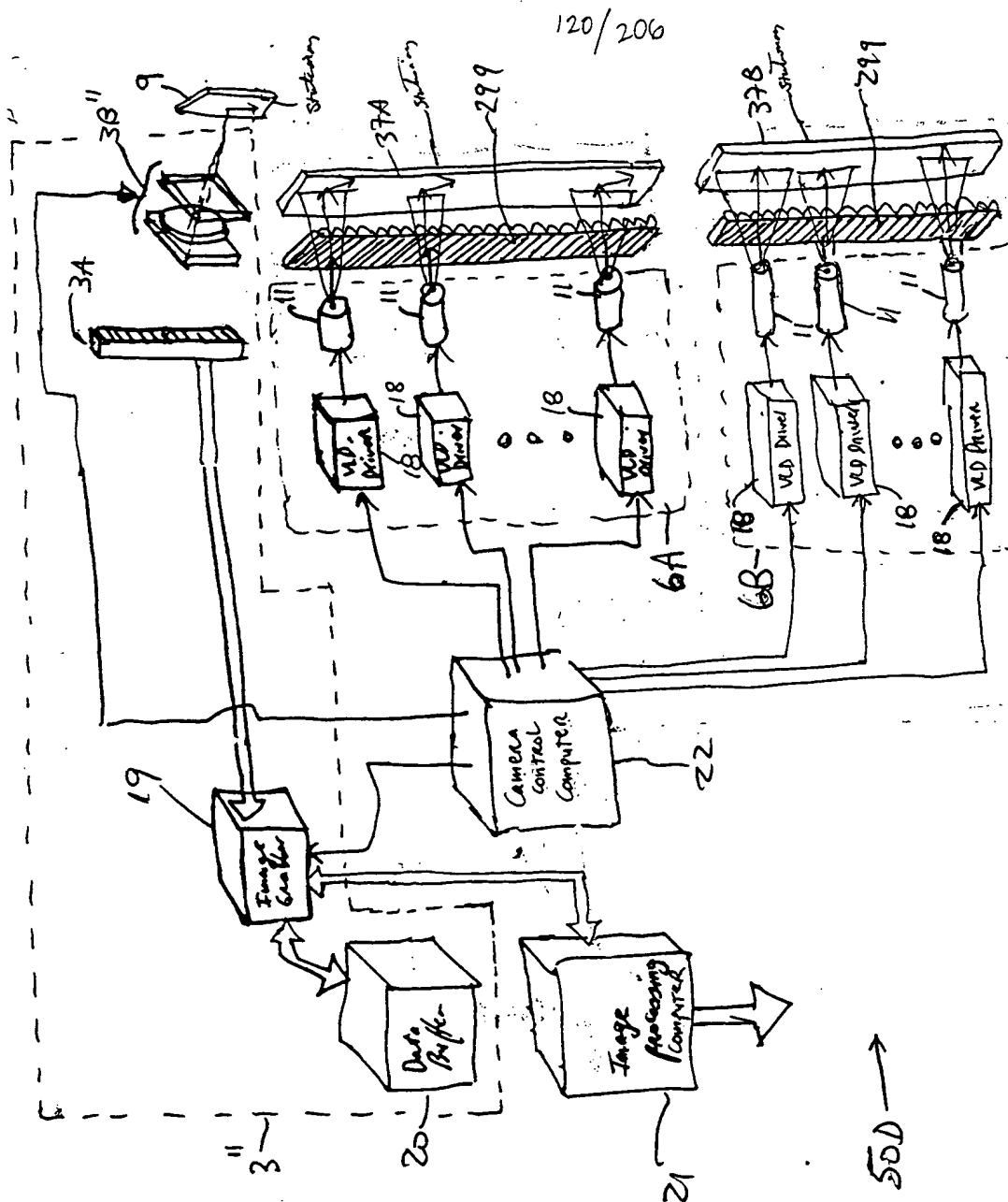


Fig. 362

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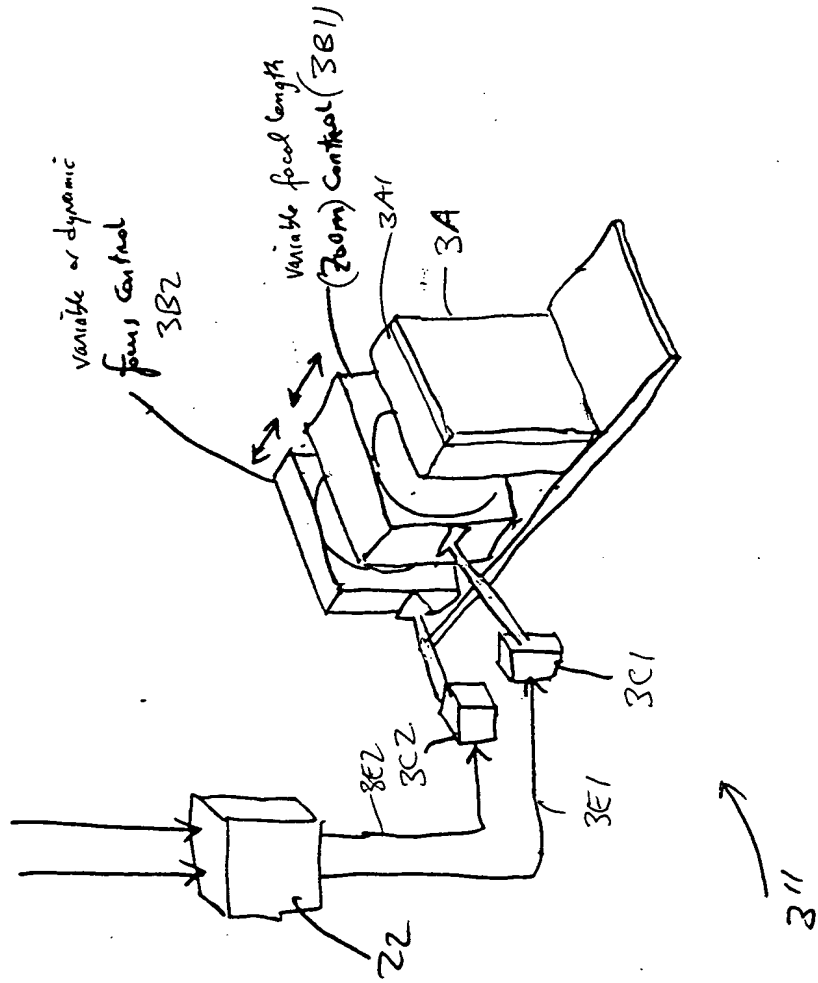


FIG. 393

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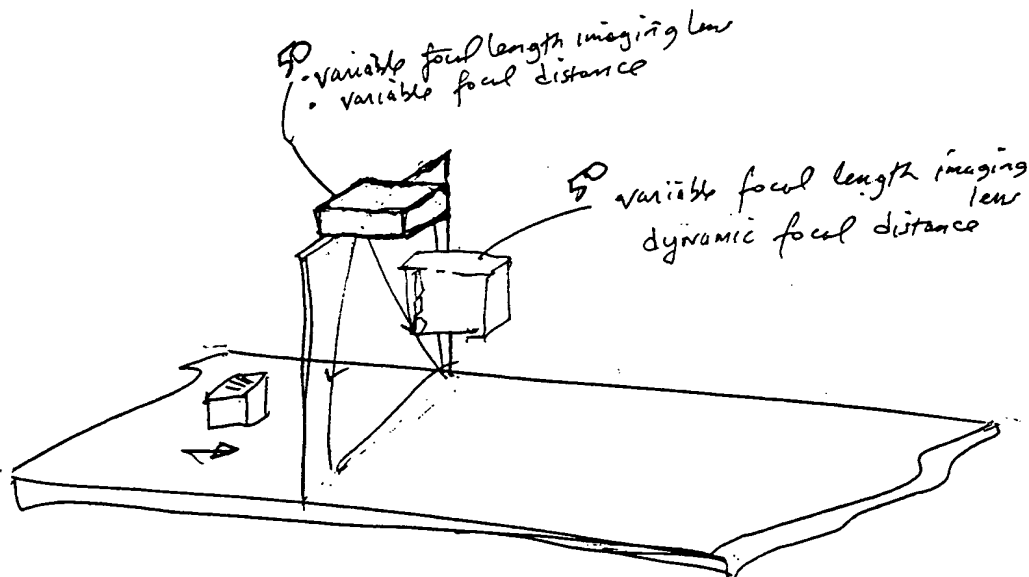


FIG. 3H

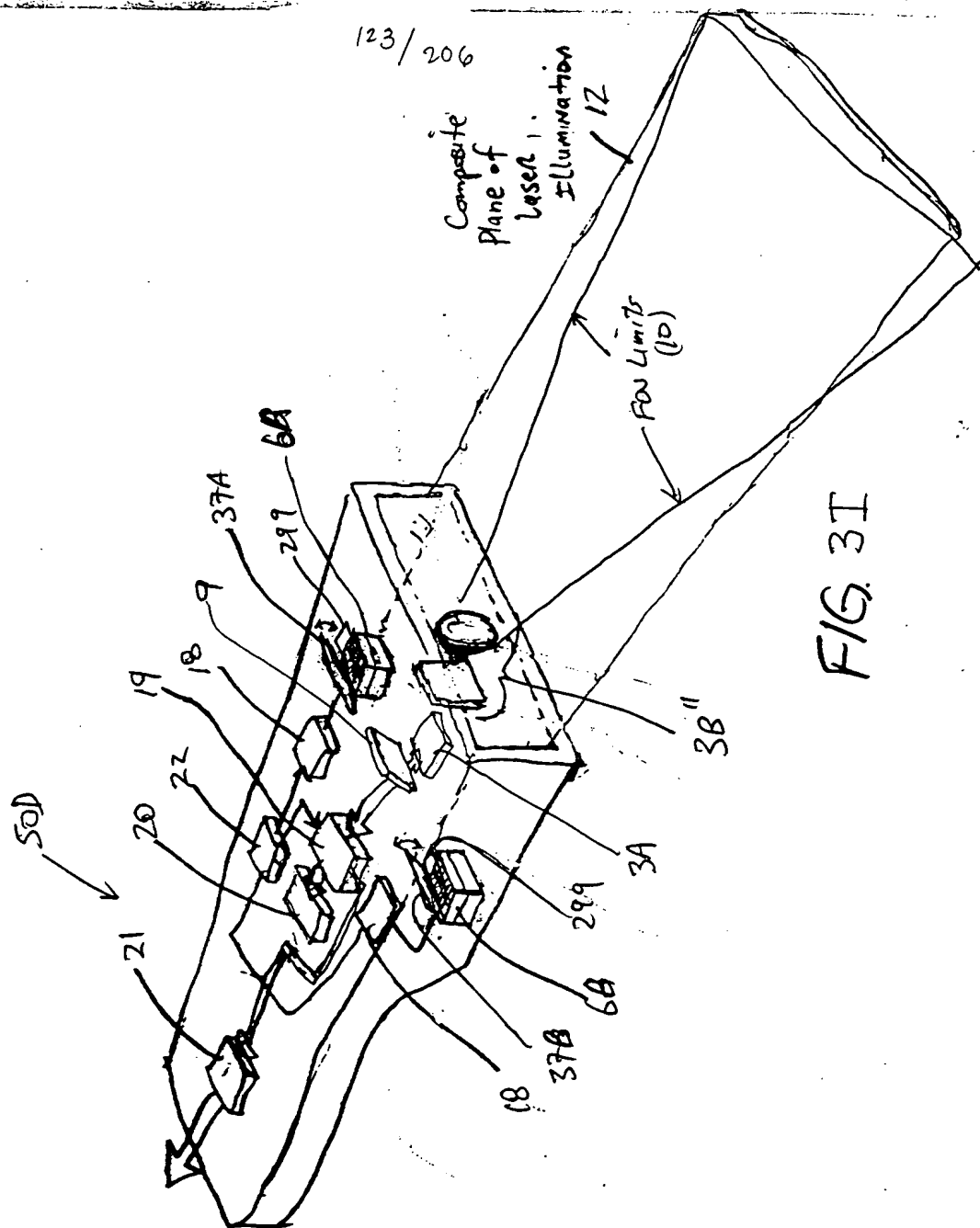


FIG. 3I

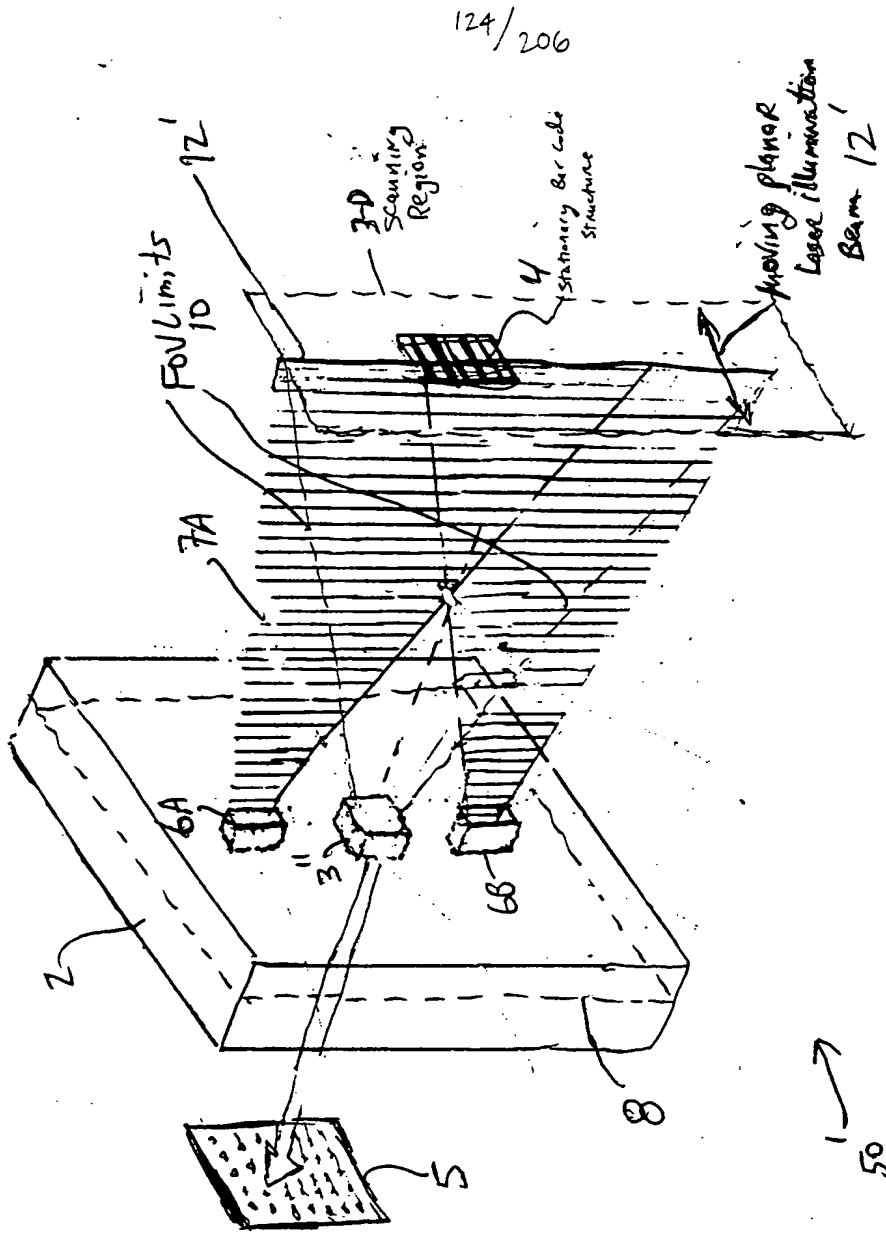


FIG. 3JI

09889130 112504

125/206

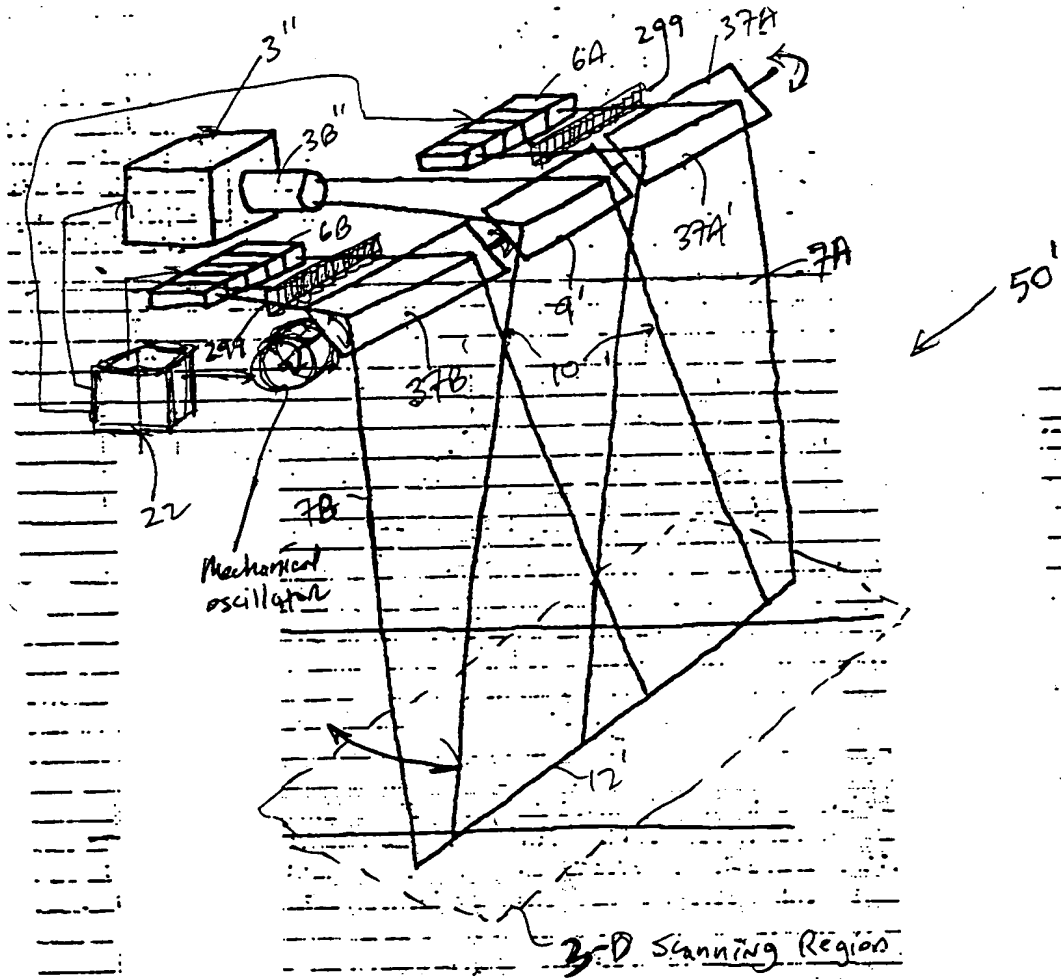


FIG 3J2

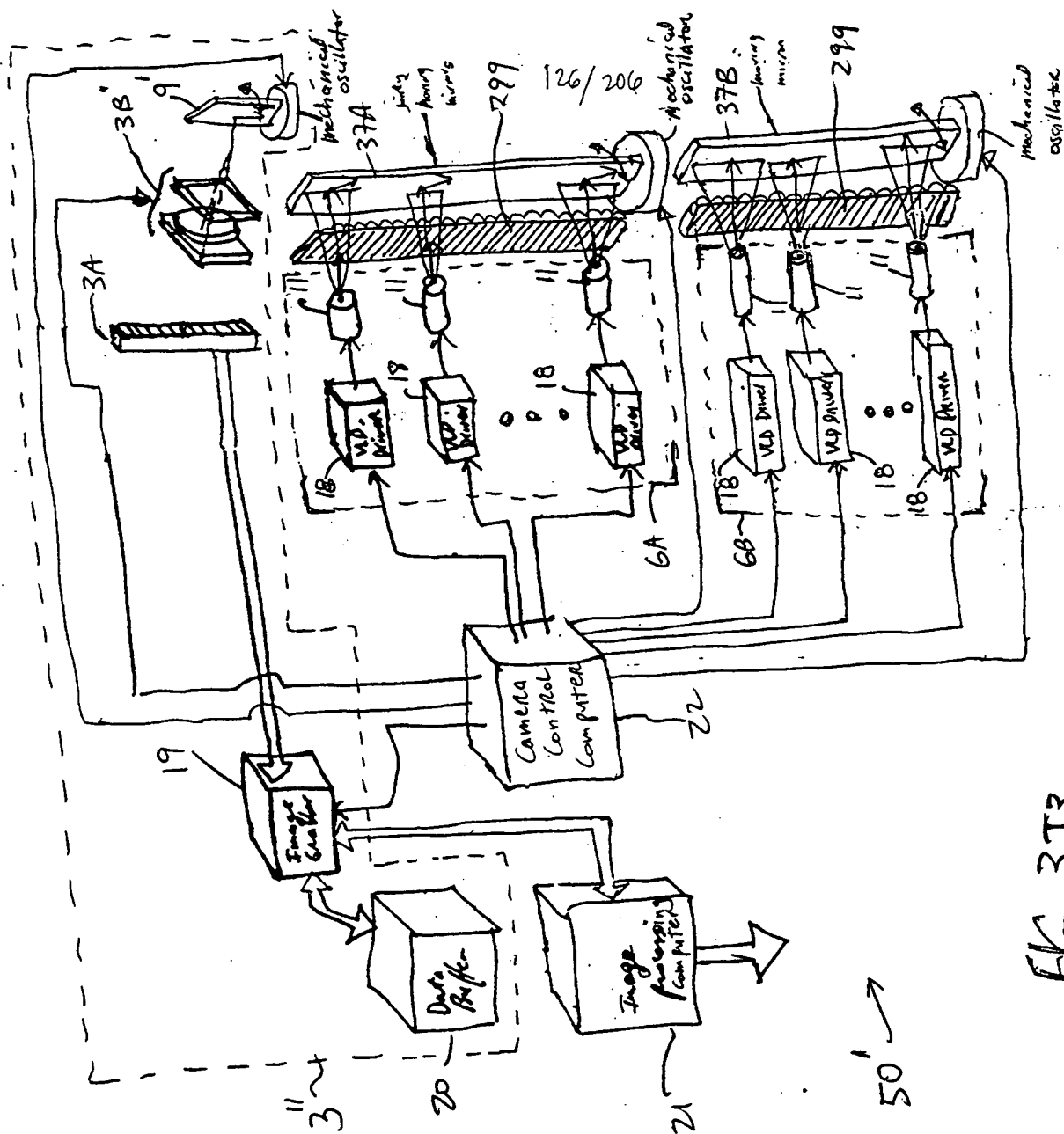


FIG. 3J3

127/206

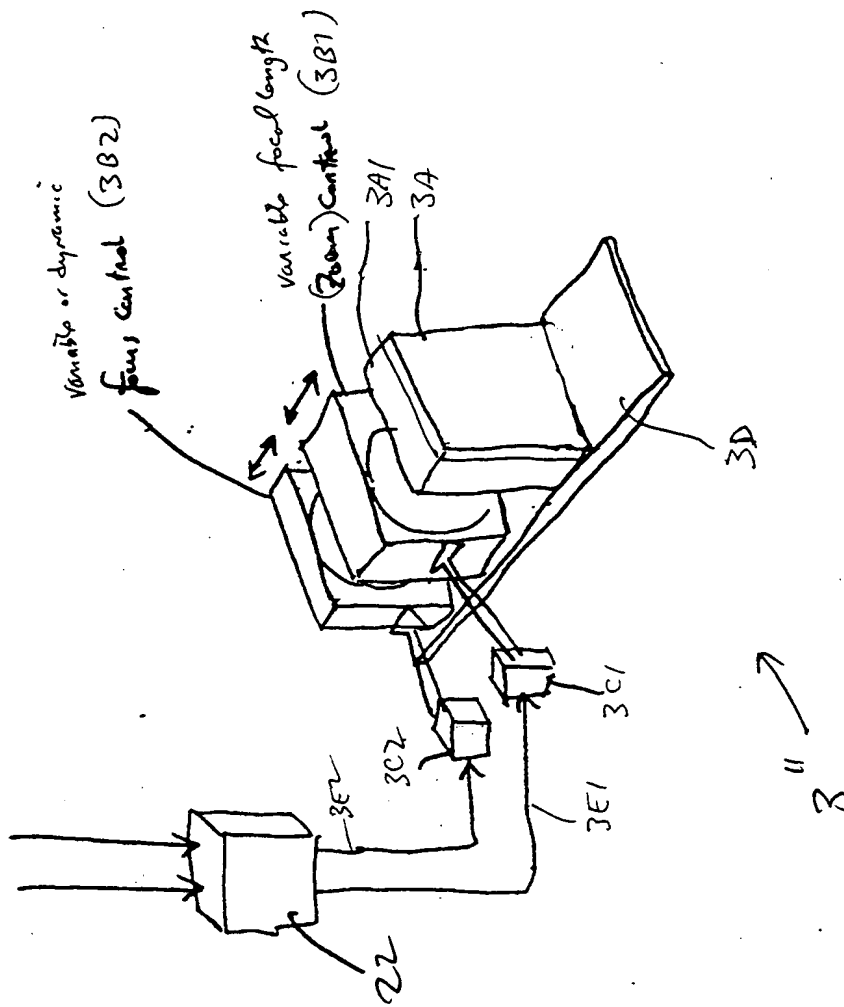


FIG. 354

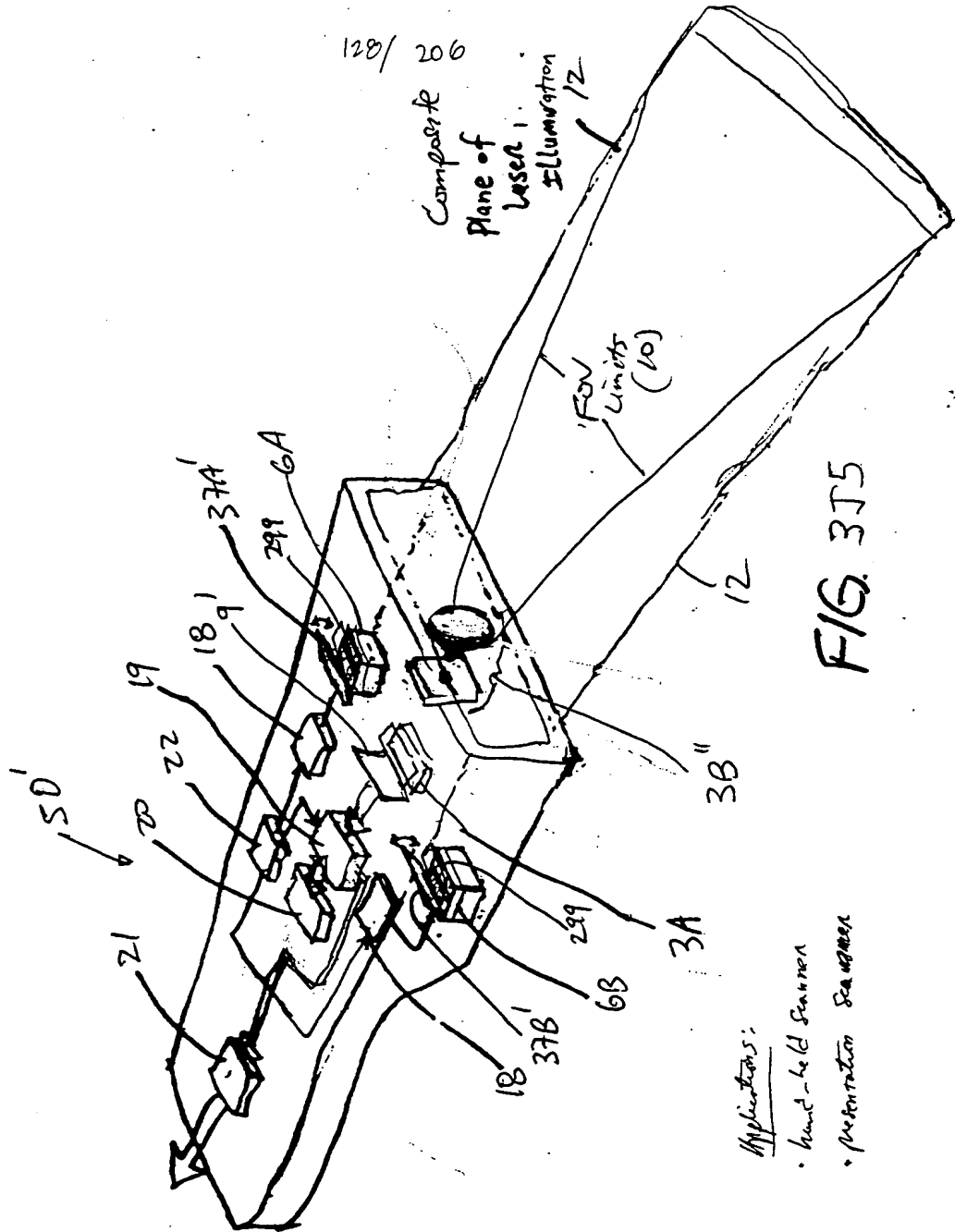


FIG. 3T5

Applications:

- hand-held scanner
- presentation scanner

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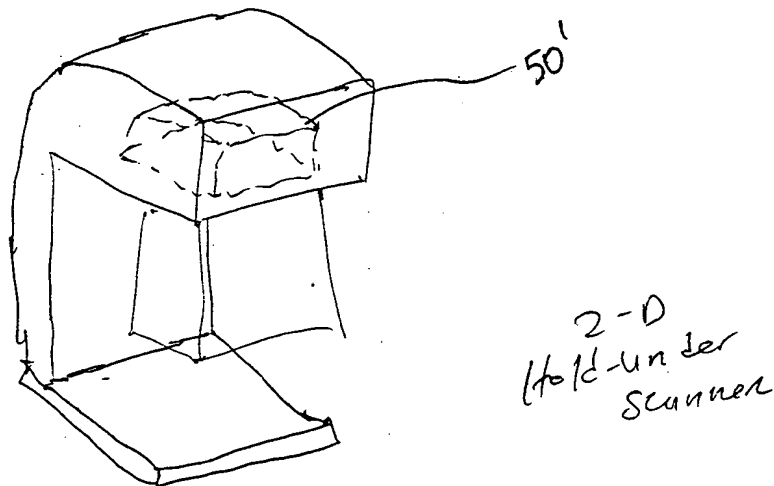


FIG. 3J6

10

11

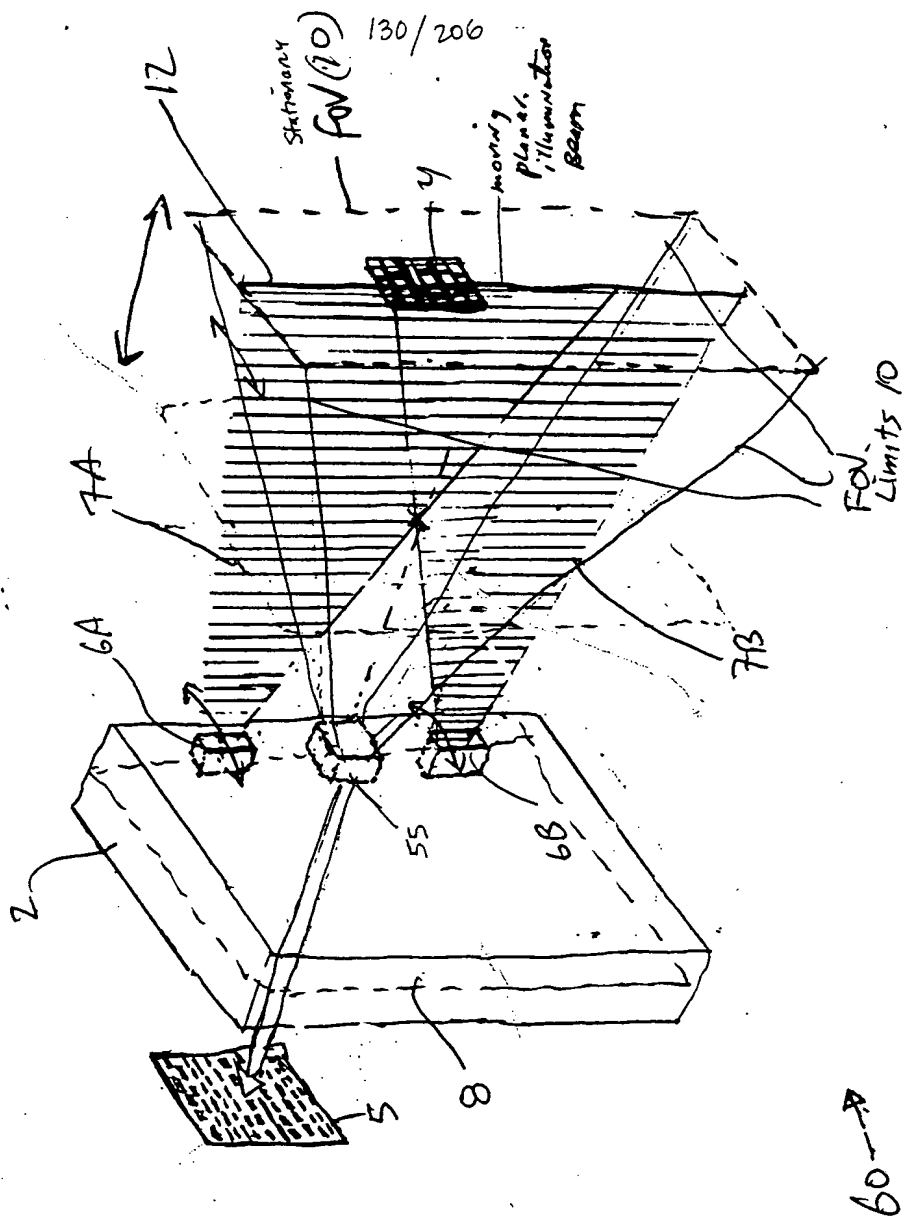


FIG 4A

Year	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100
1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	

[illegible]

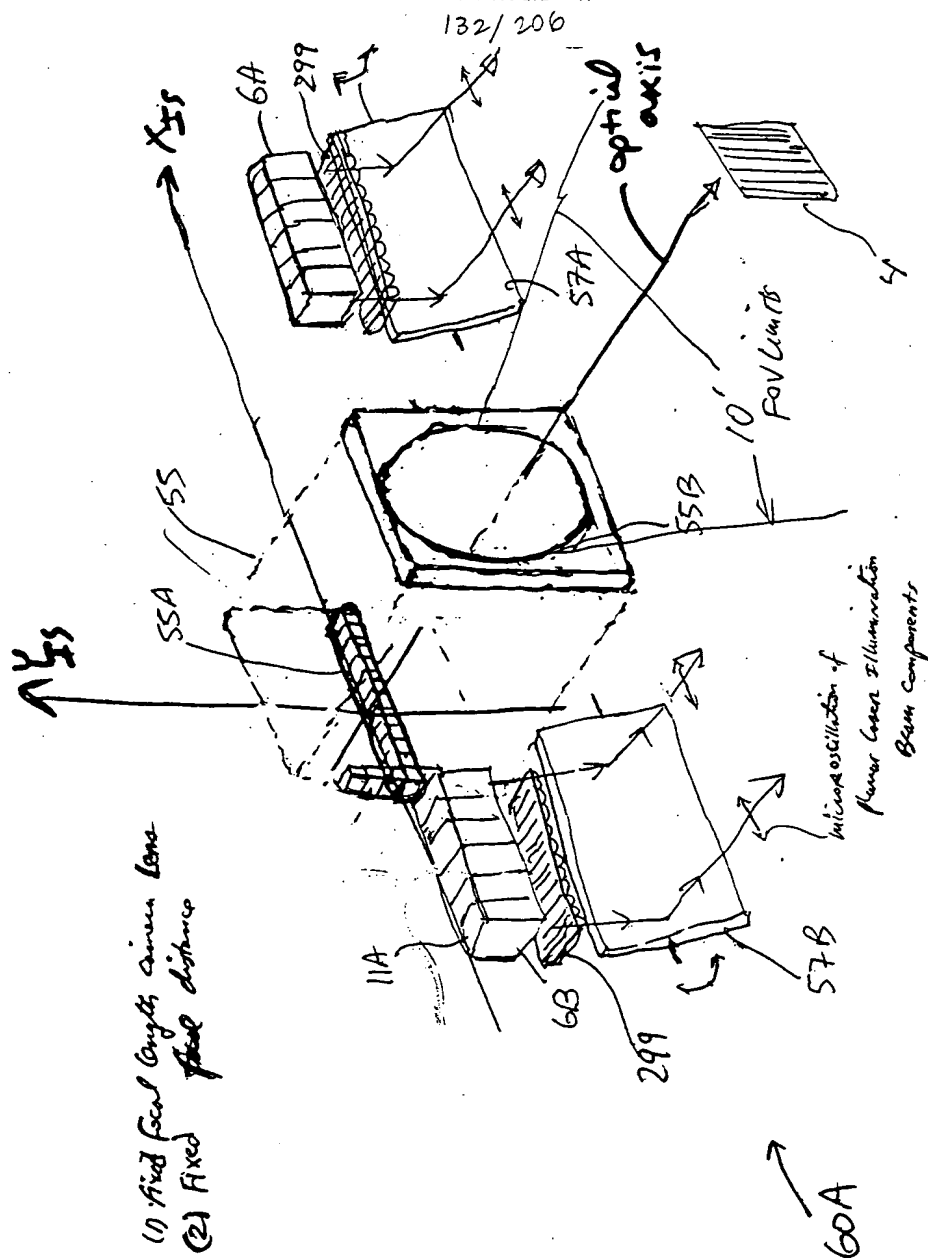
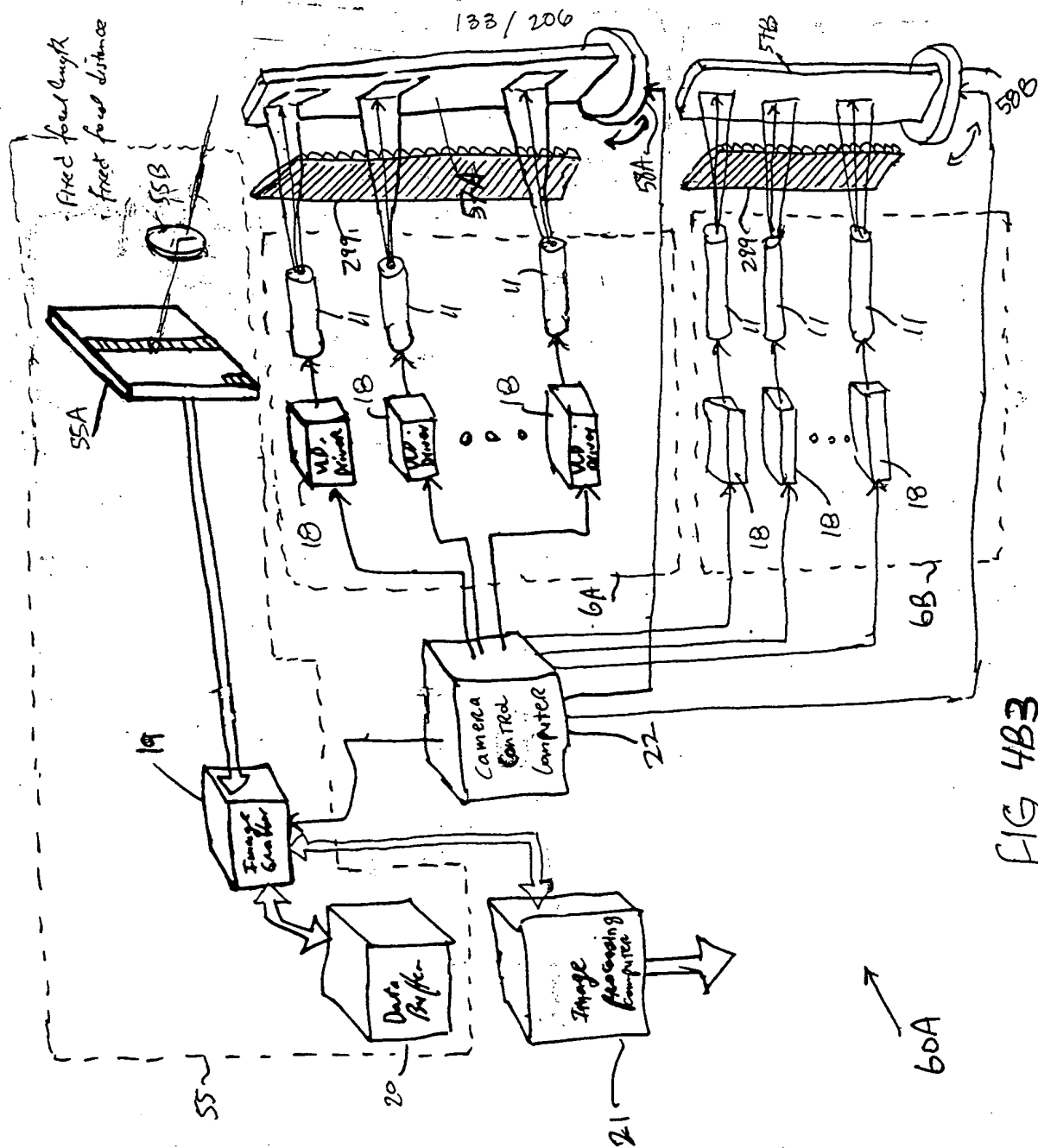


FIG. 4BZ



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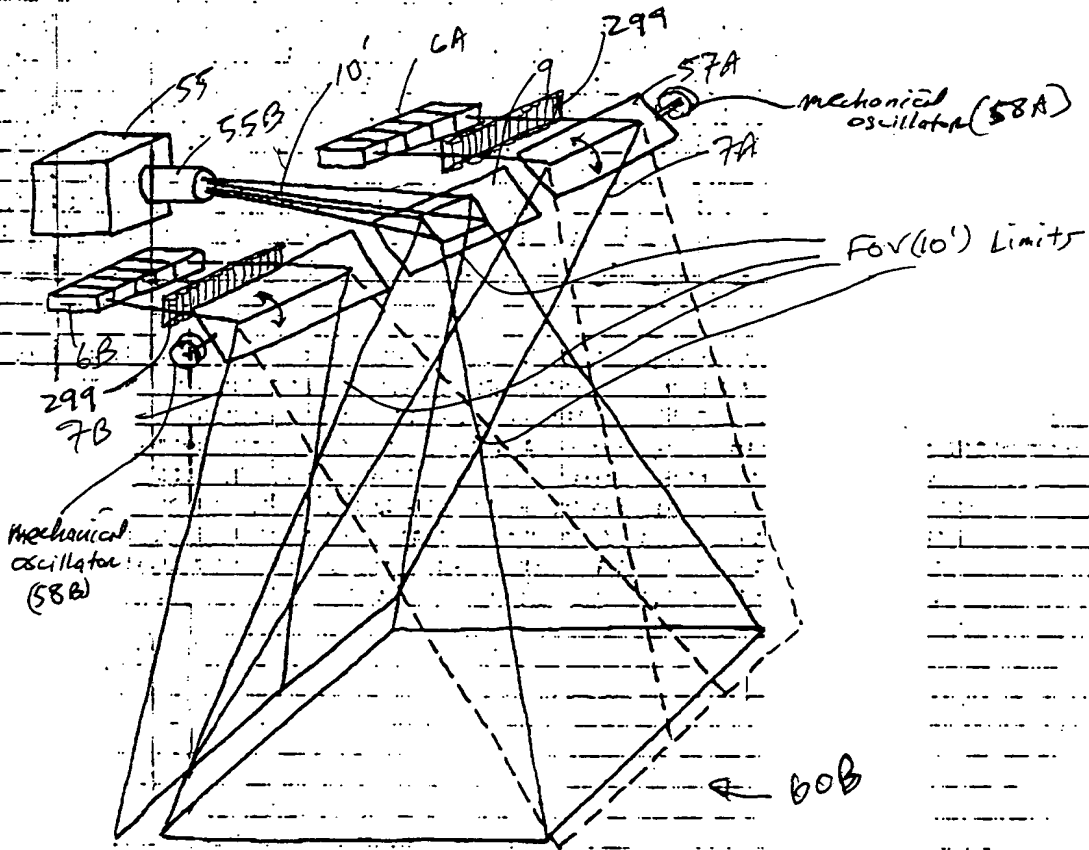


FIG 4CL

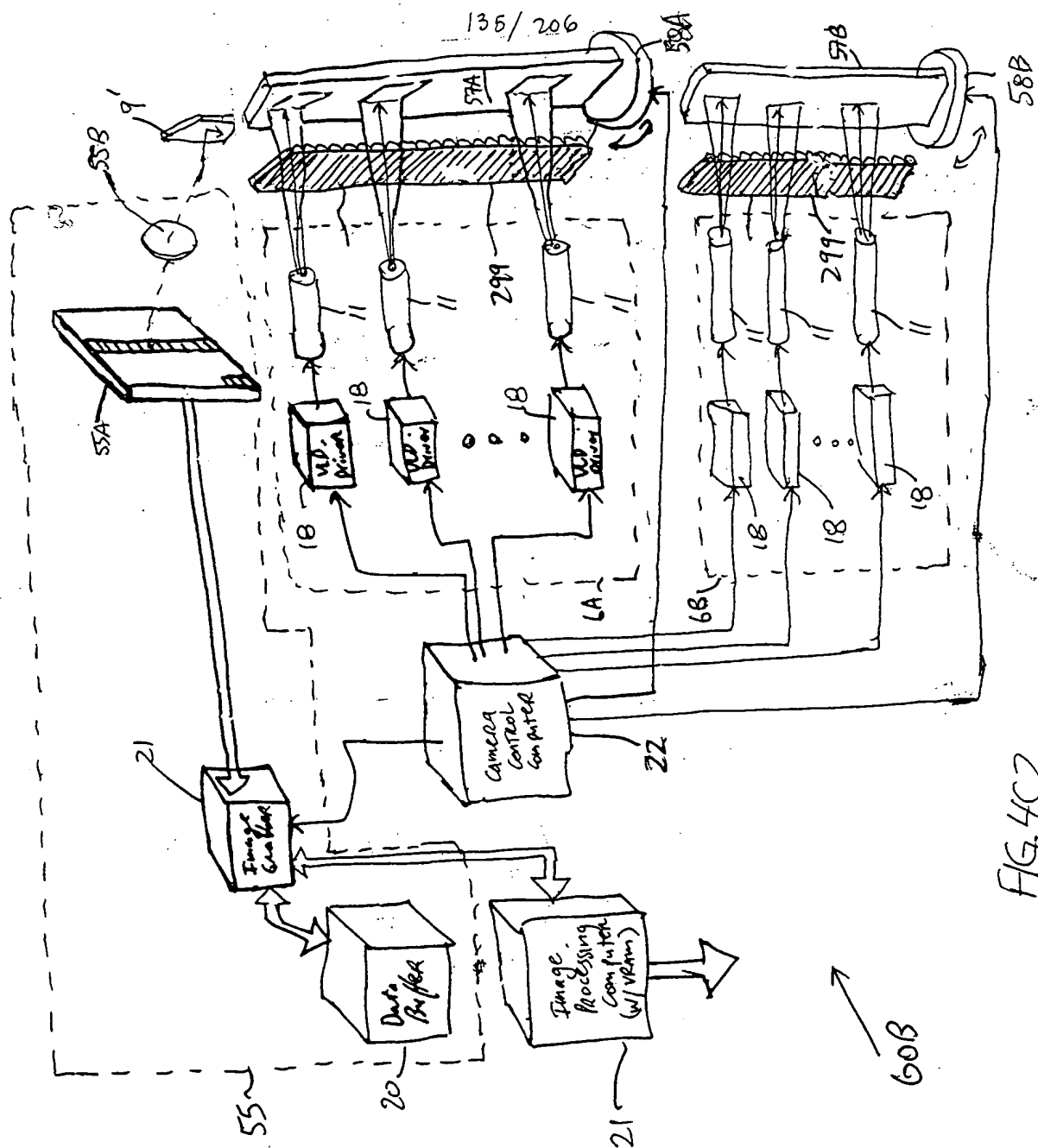


FIG. 4C2

608

09889430.112604

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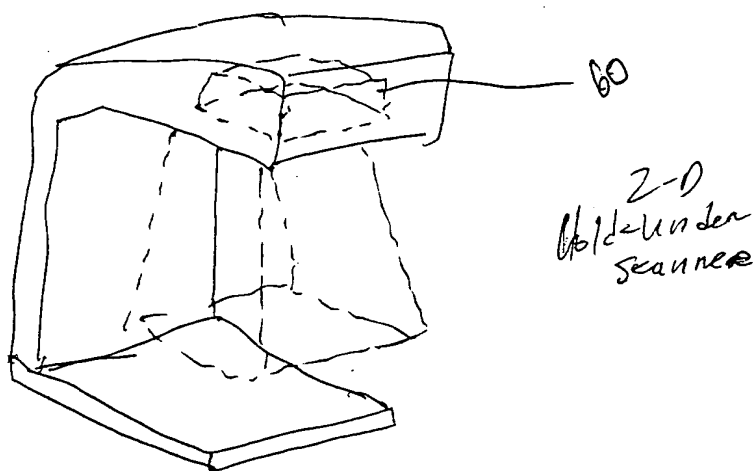
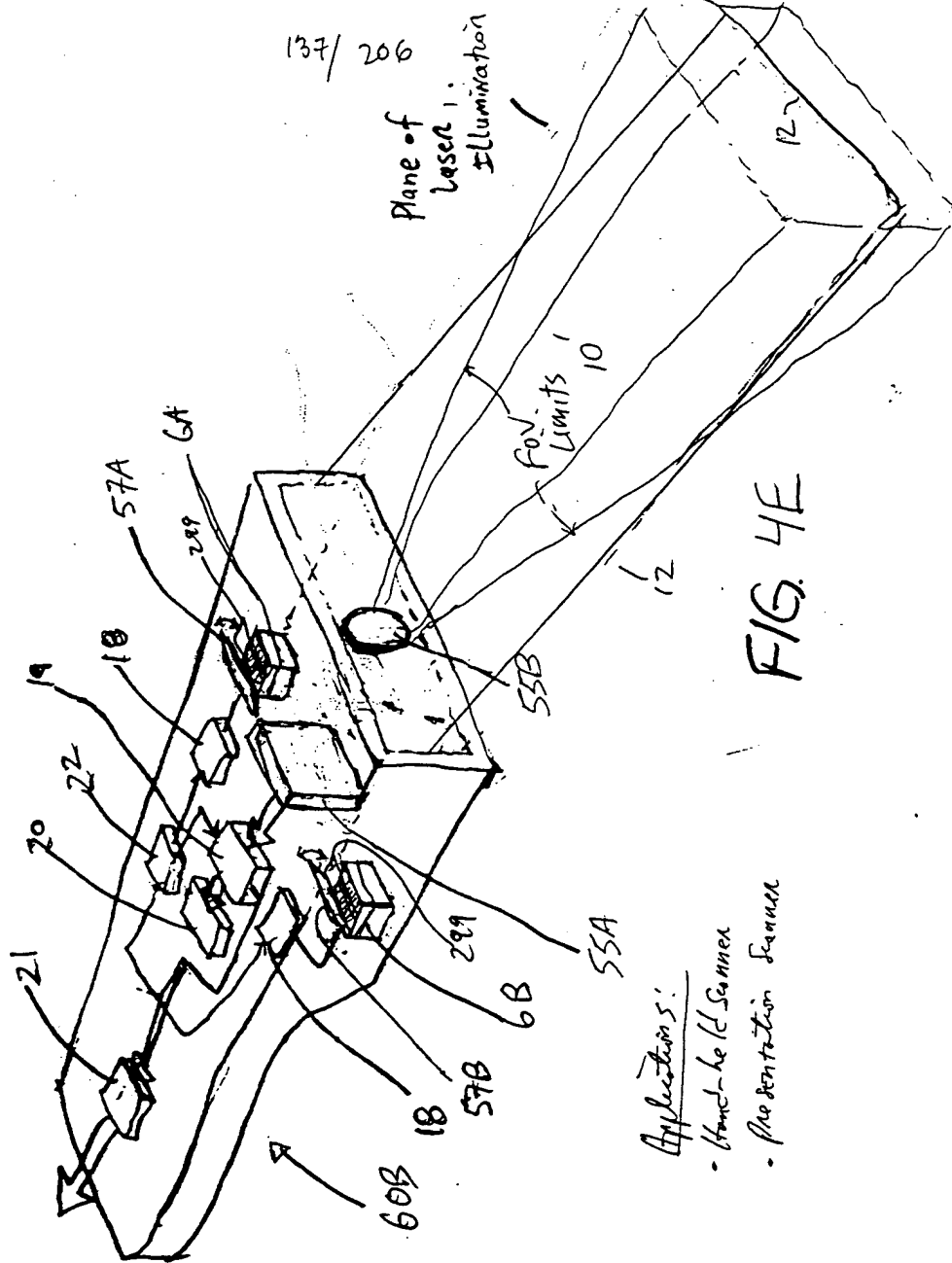


FIG. 4D



Applications:

- Hand-held Scanner
- Presentation Scanner

FIG. 5B1

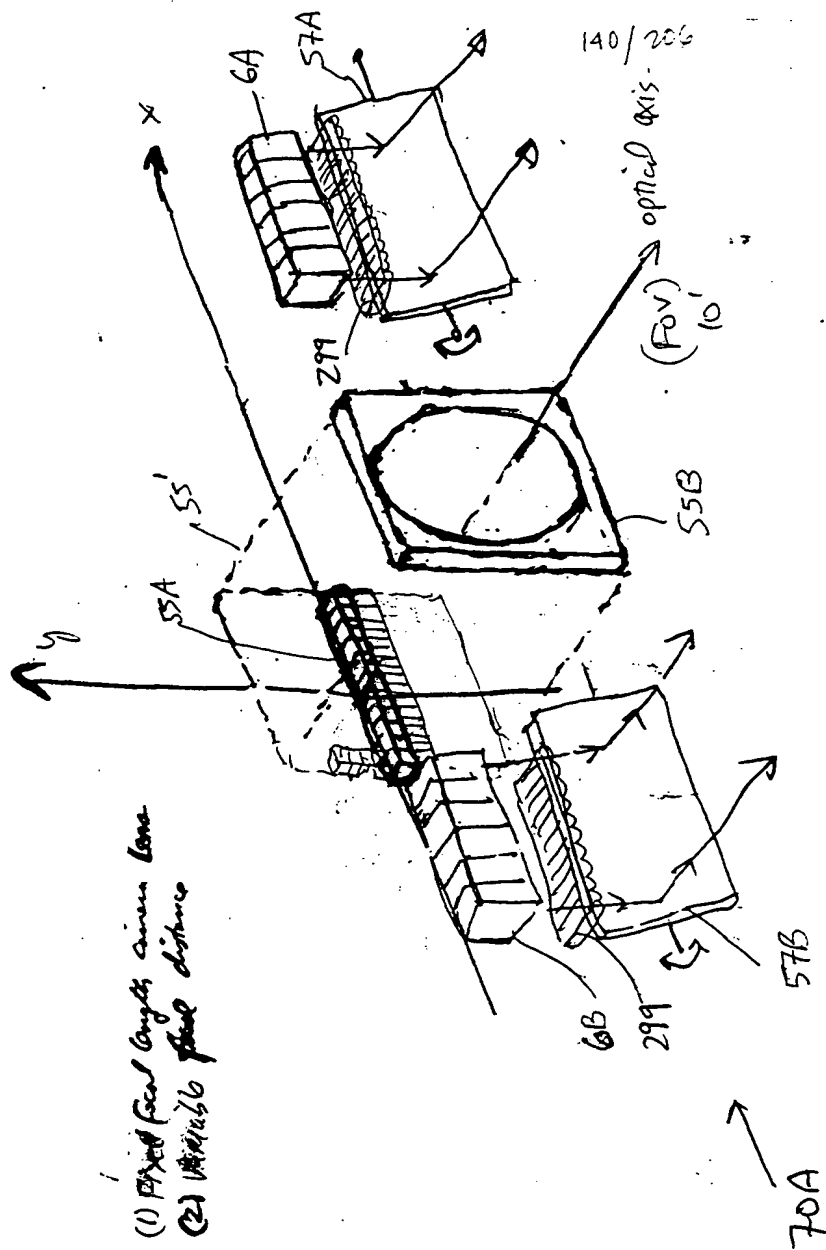


FIG. 5B2

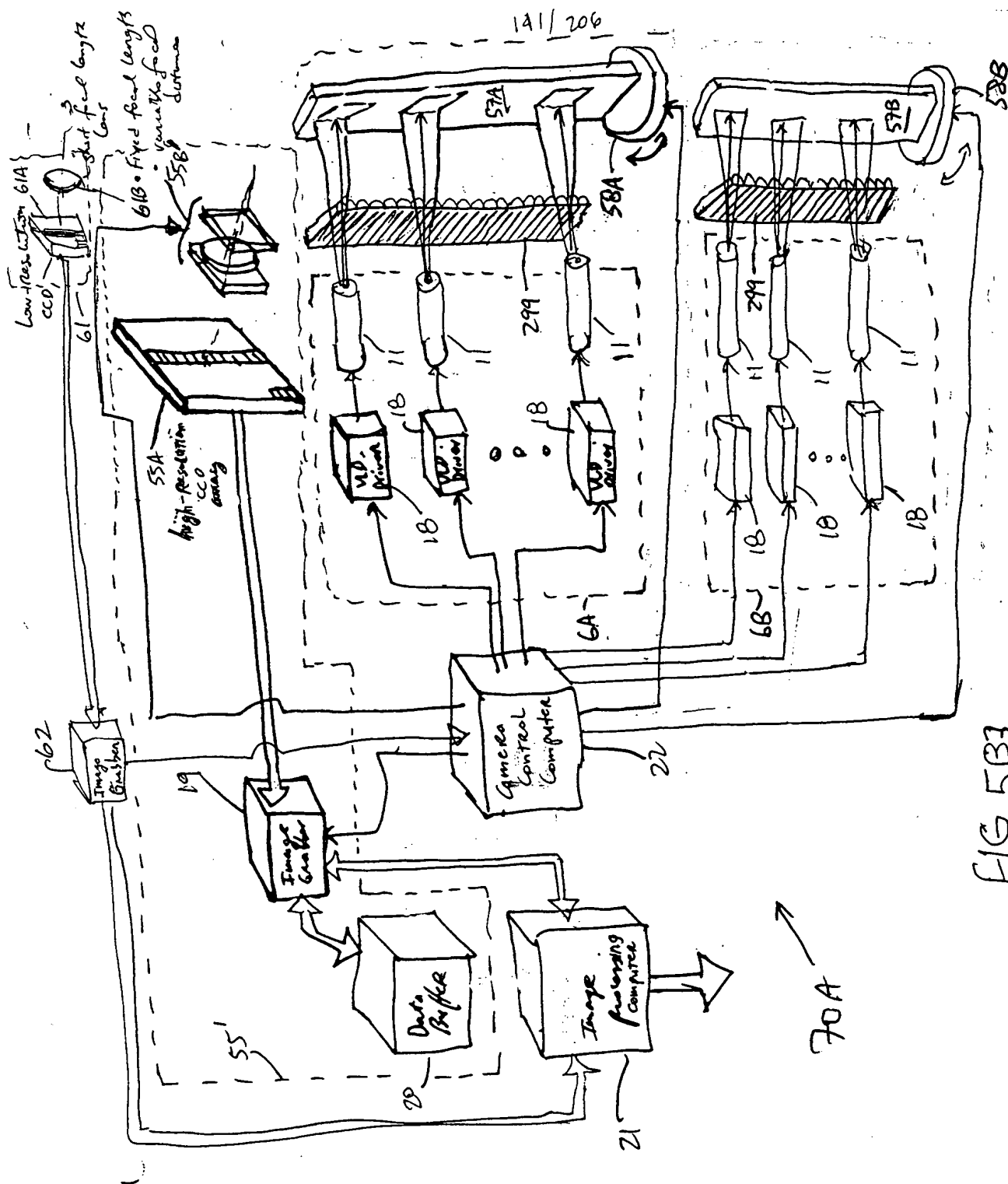


FIG. 5B3

—

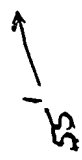
[illegible]

Fig. 5B4

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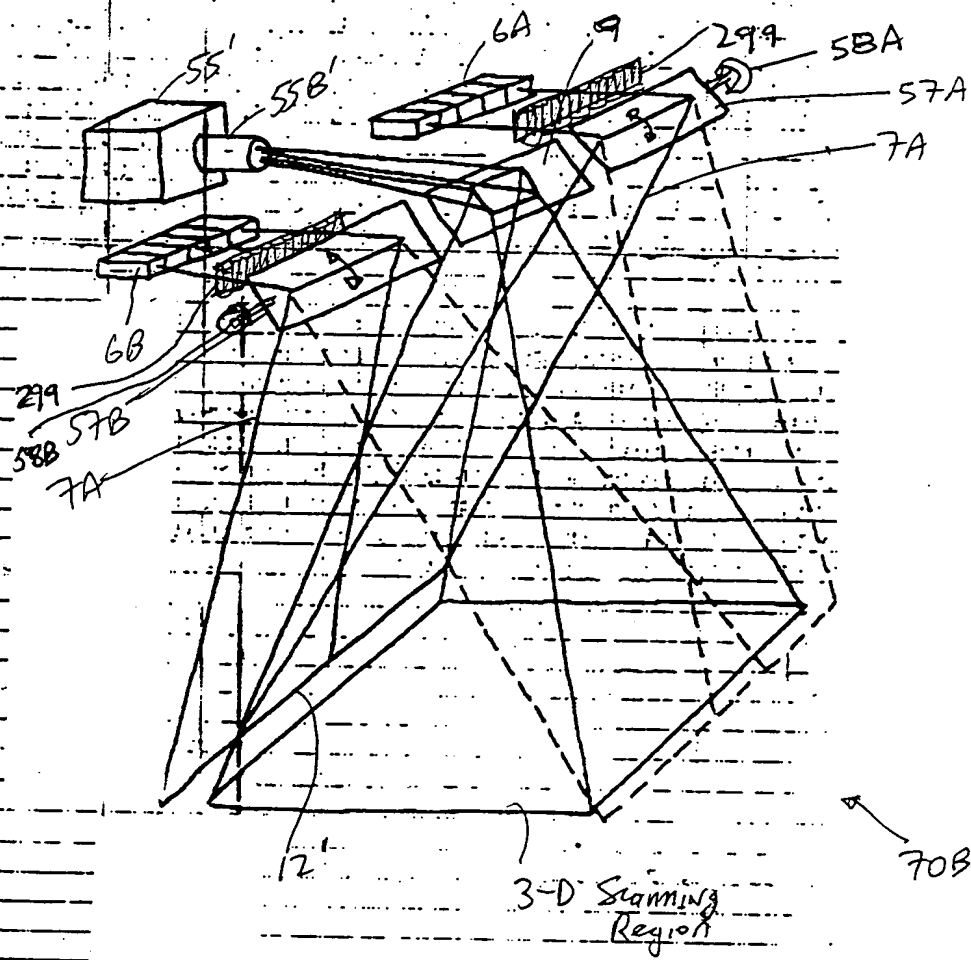


FIG. 5C1

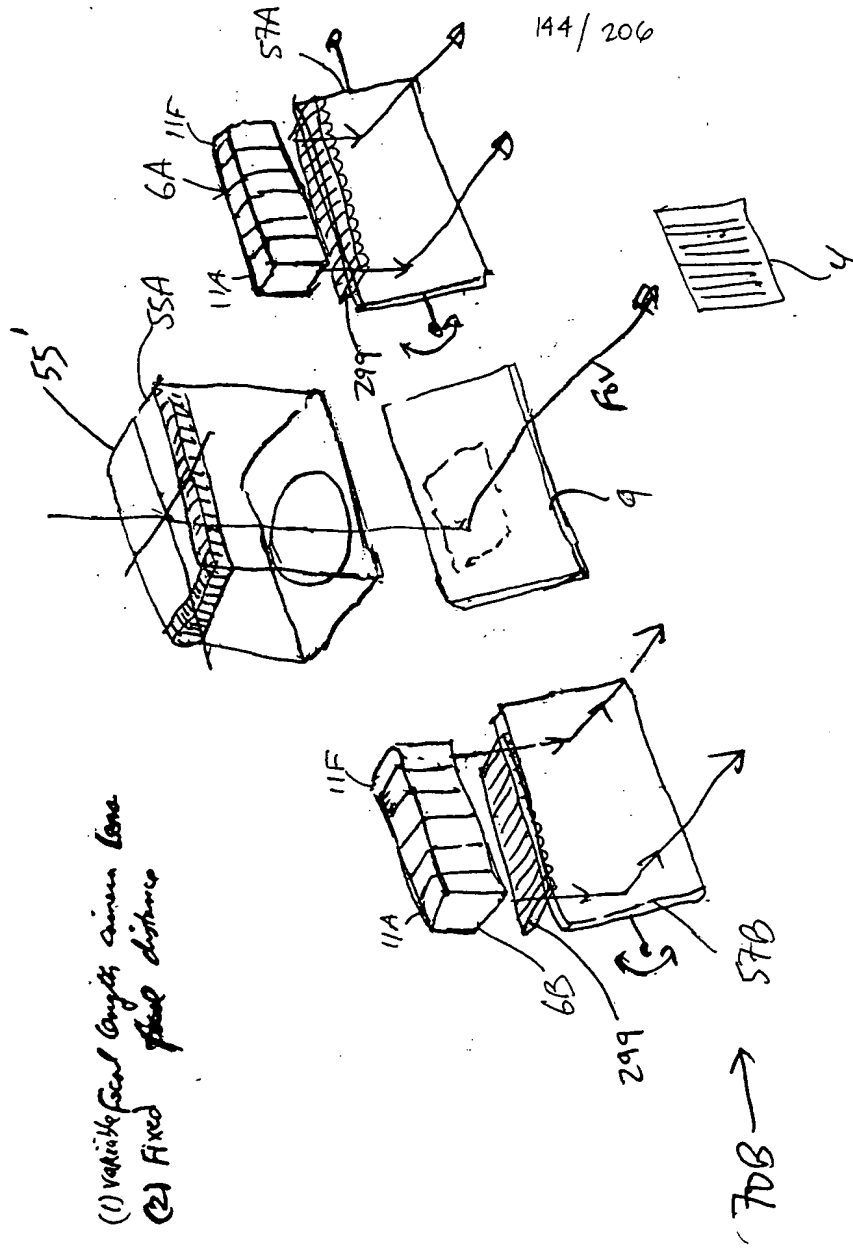


FIG. 50

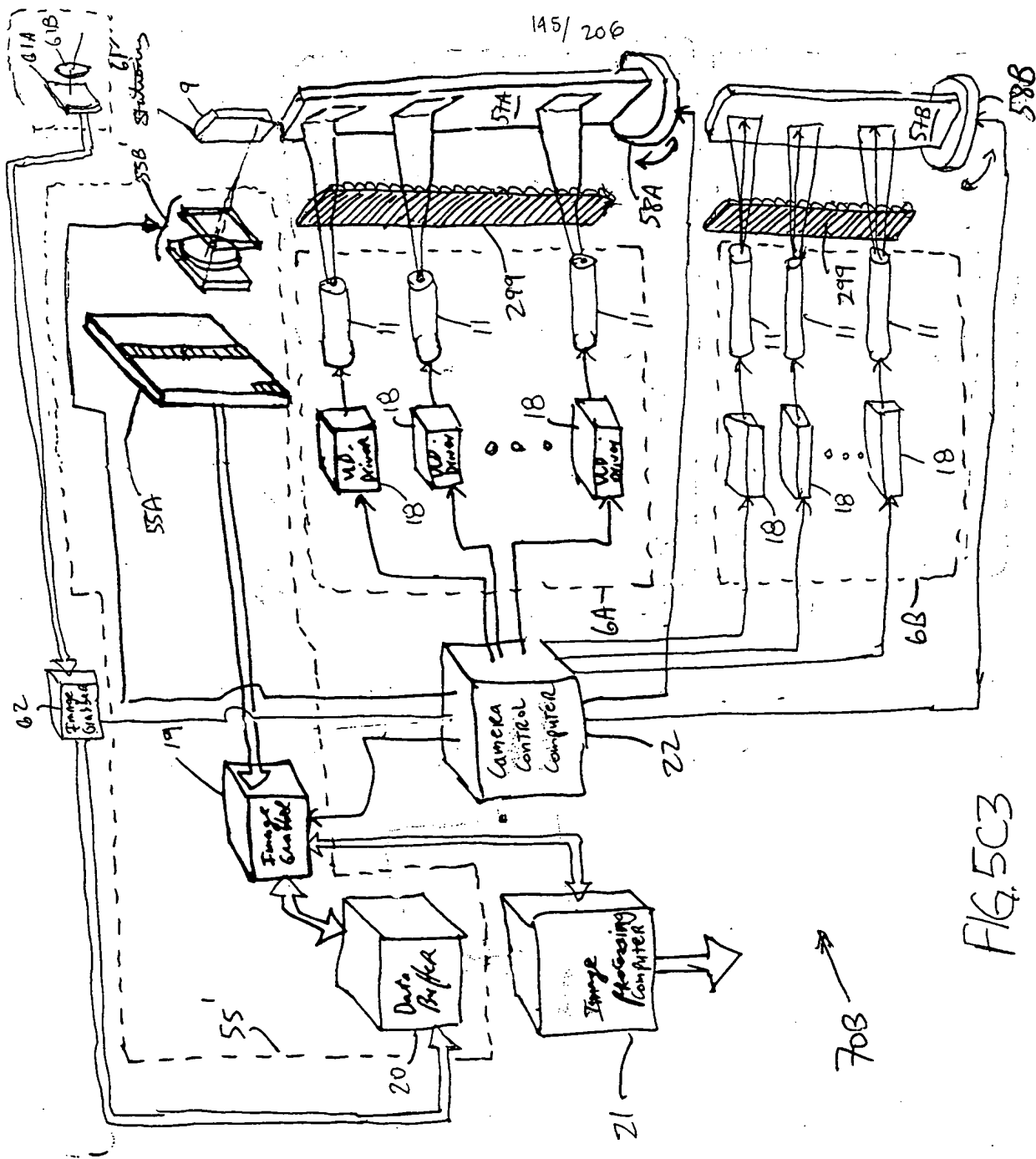


FIG. 5C3

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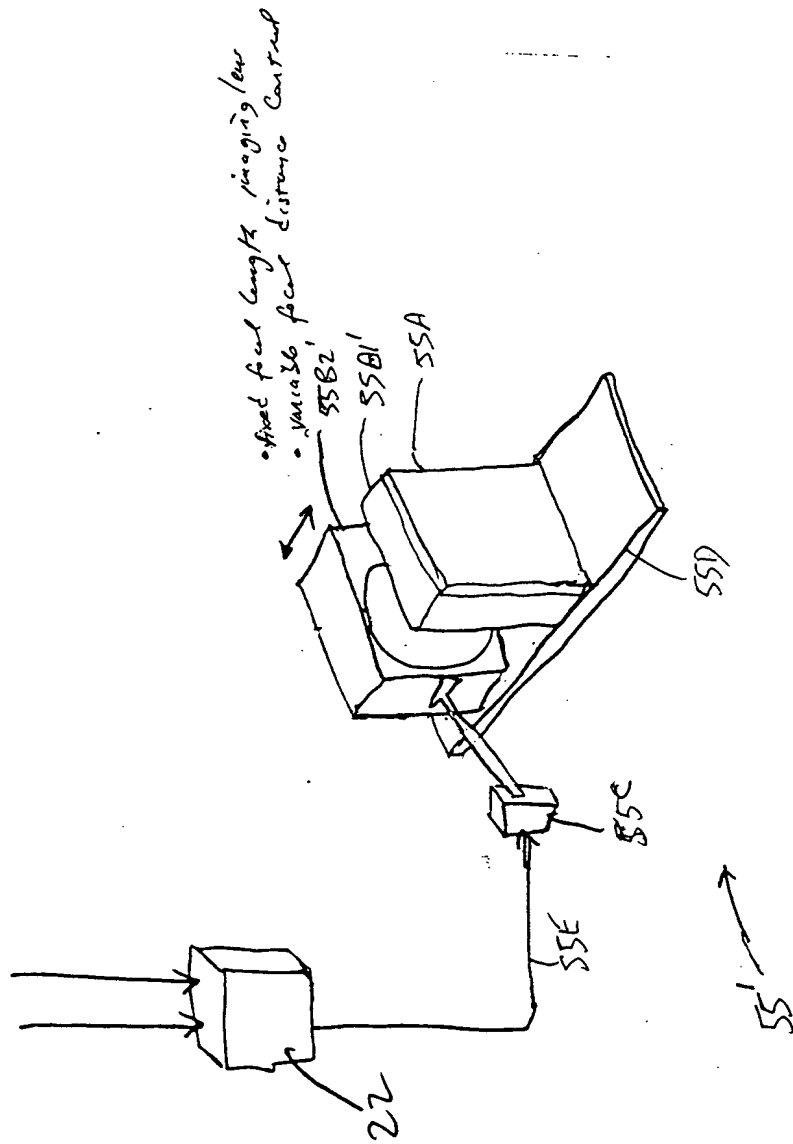


FIG. 5C4

09837430 112334

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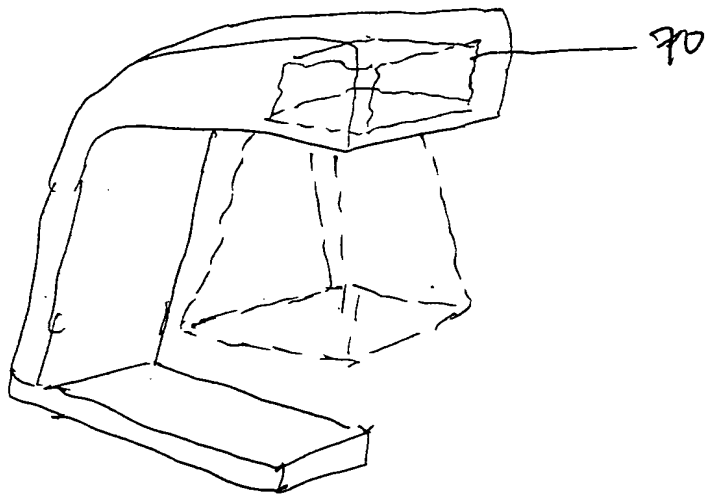


FIG 5D

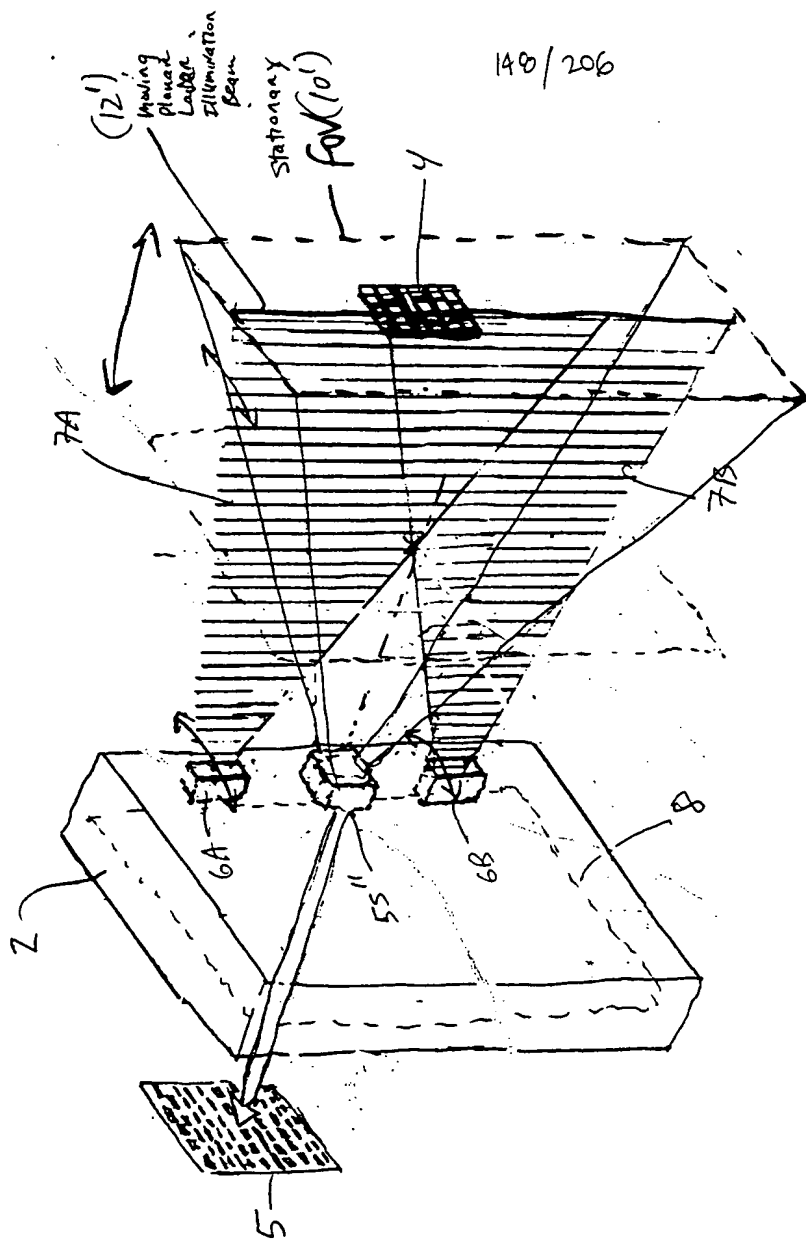


FIG. 6A

09887430 412604

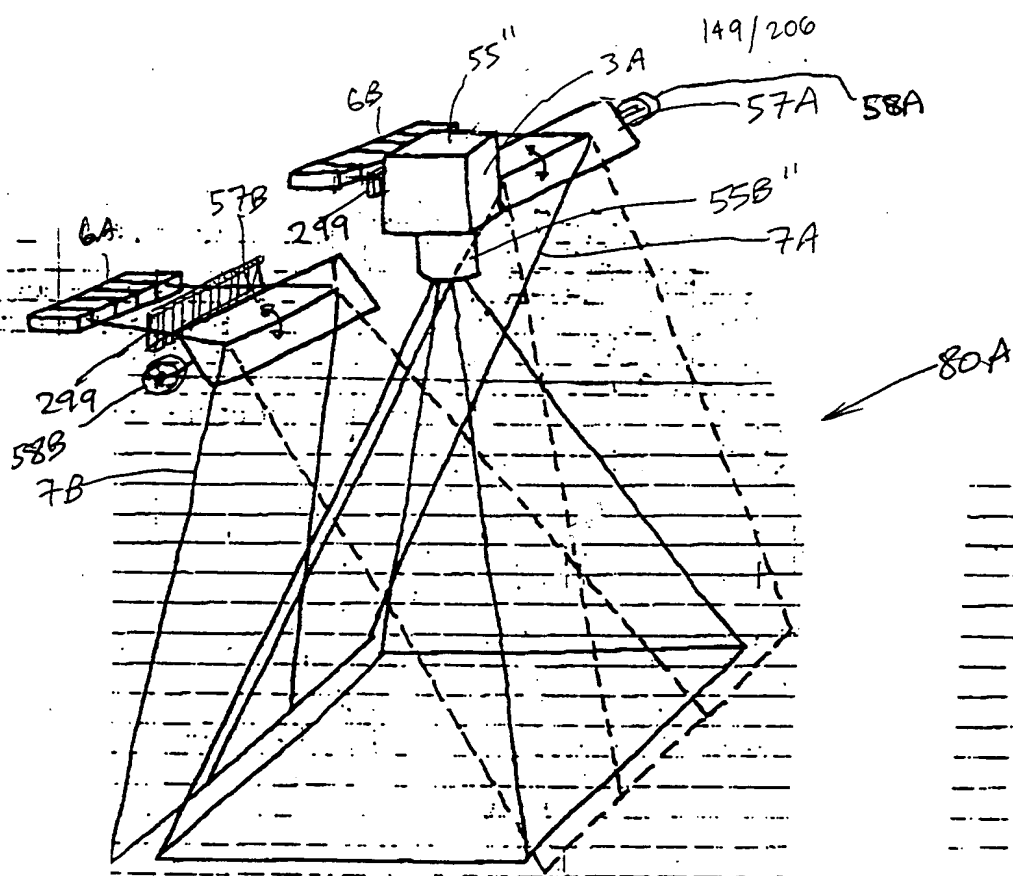


FIG. 6B1

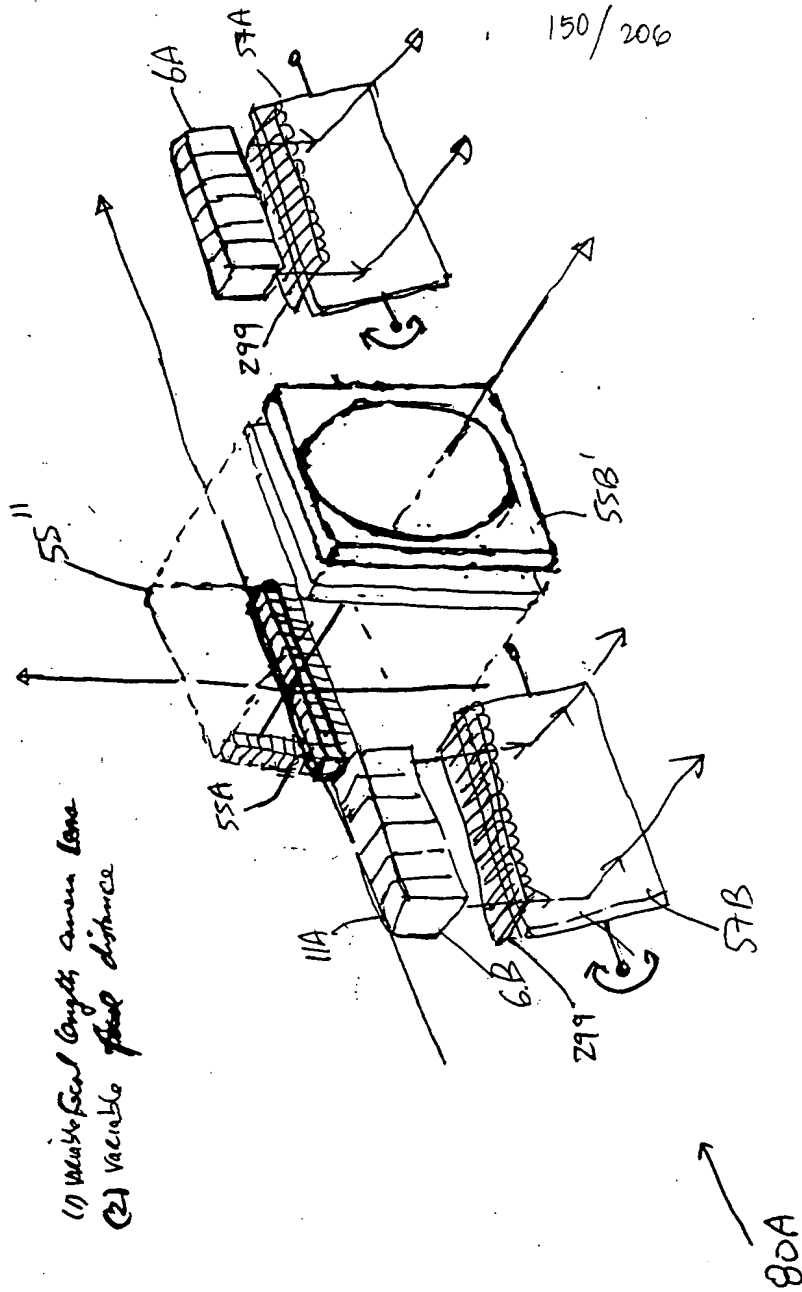


FIG. 6B2

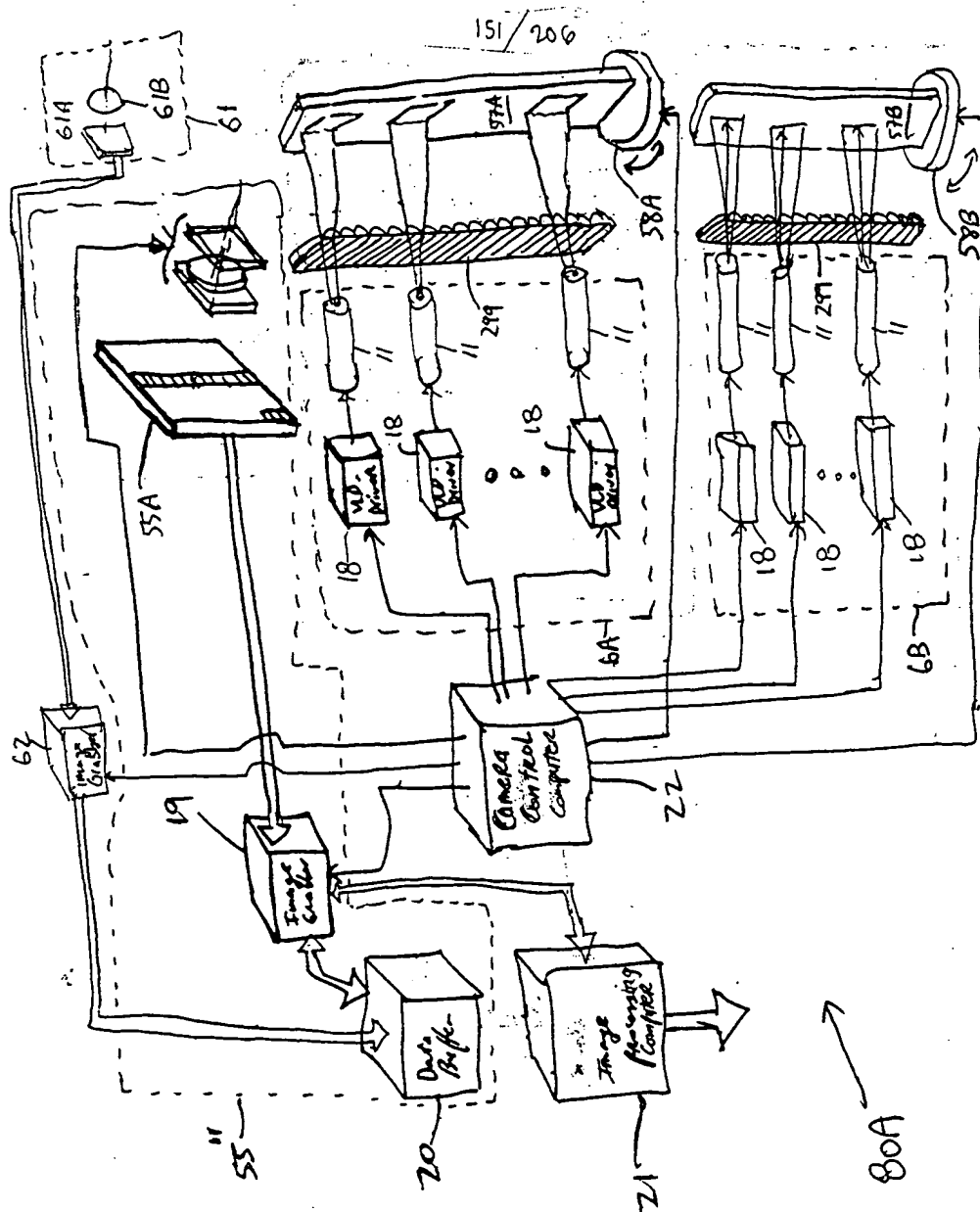
[illegible]

FIG. 6B3

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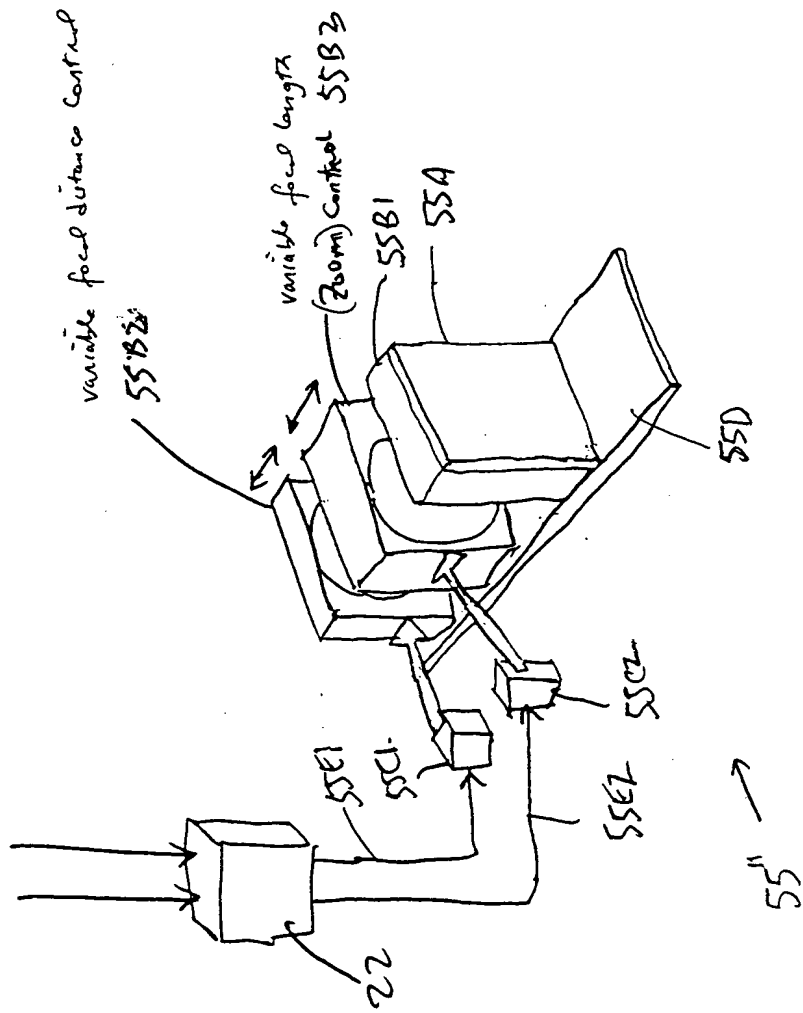


FIG. 6B4

00000430 112601

153/206

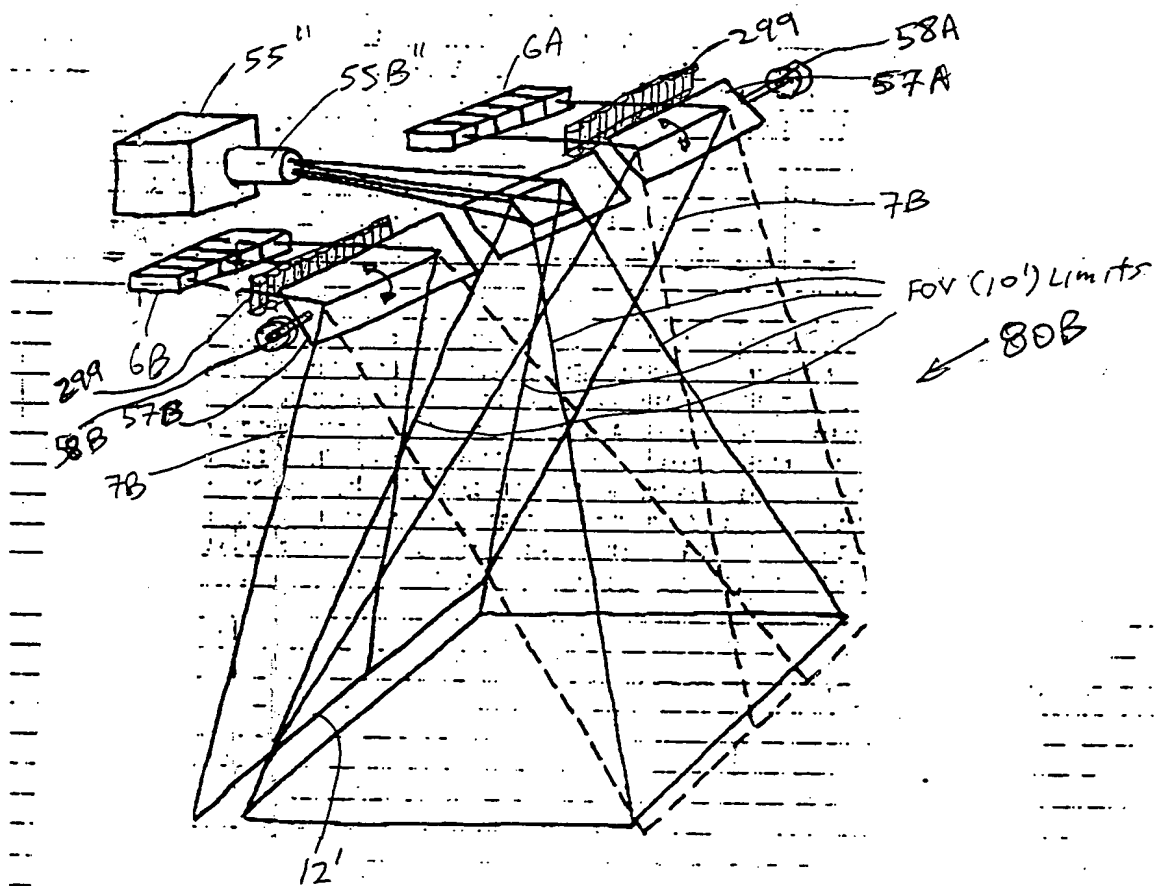
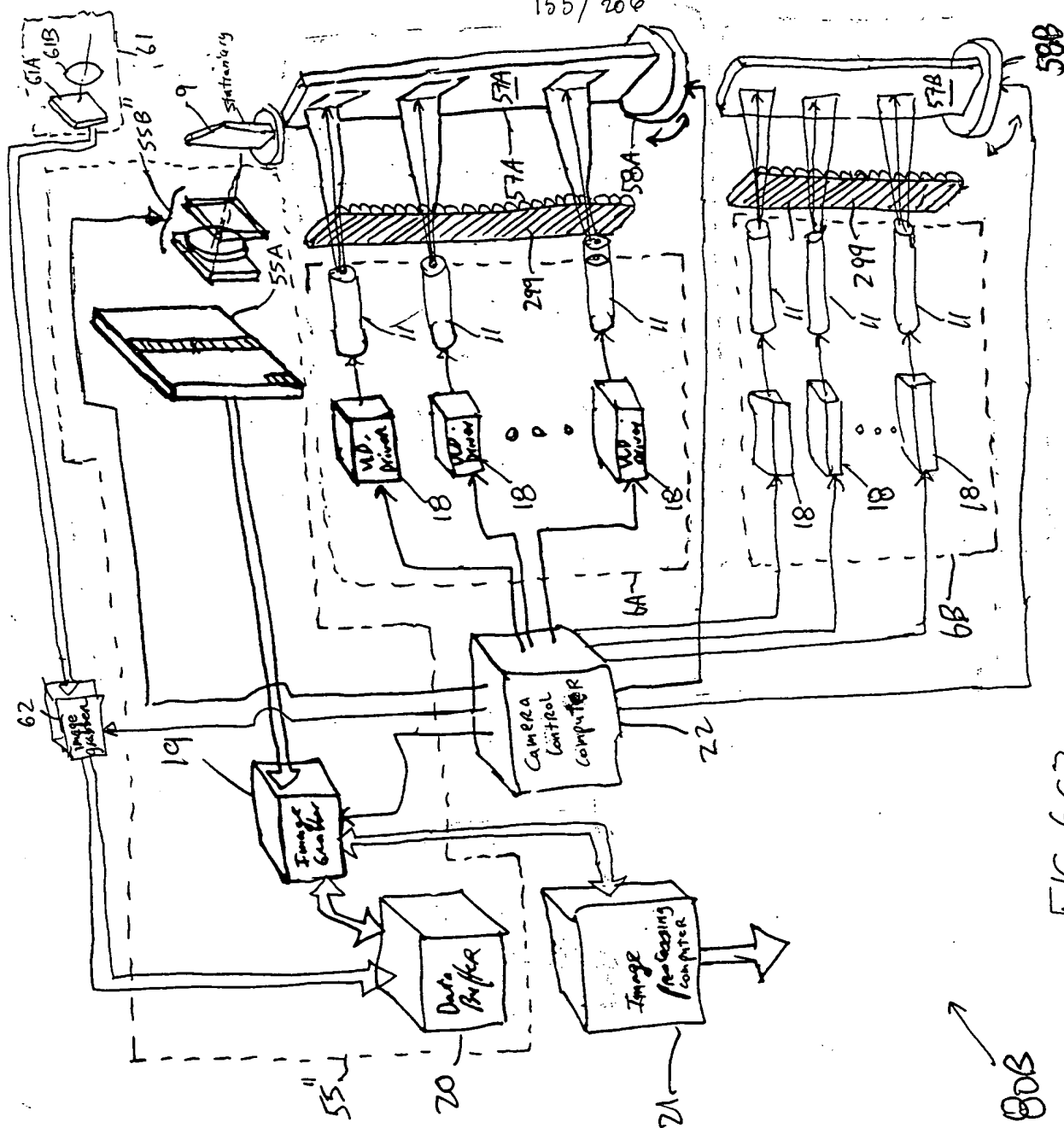


FIG. 6C1

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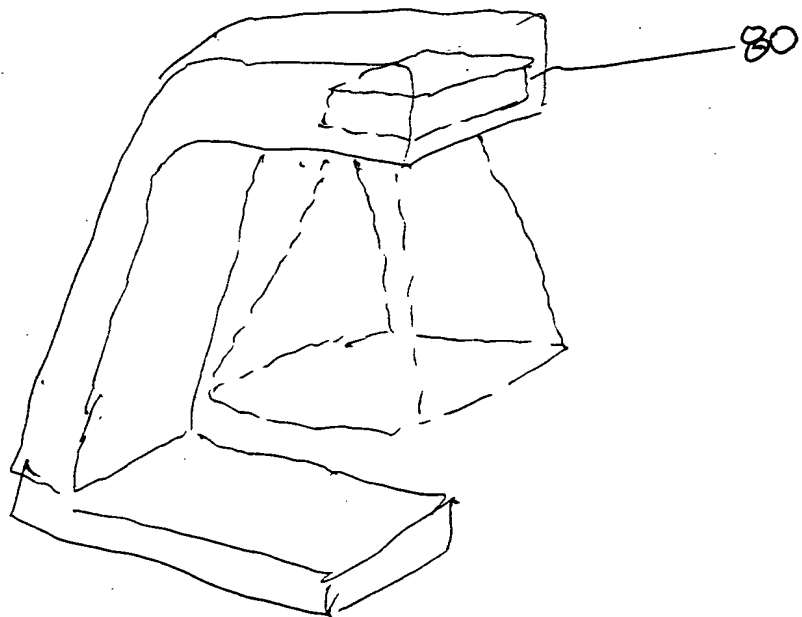


FIG. 6C5

3983430.412604

0983130 412604

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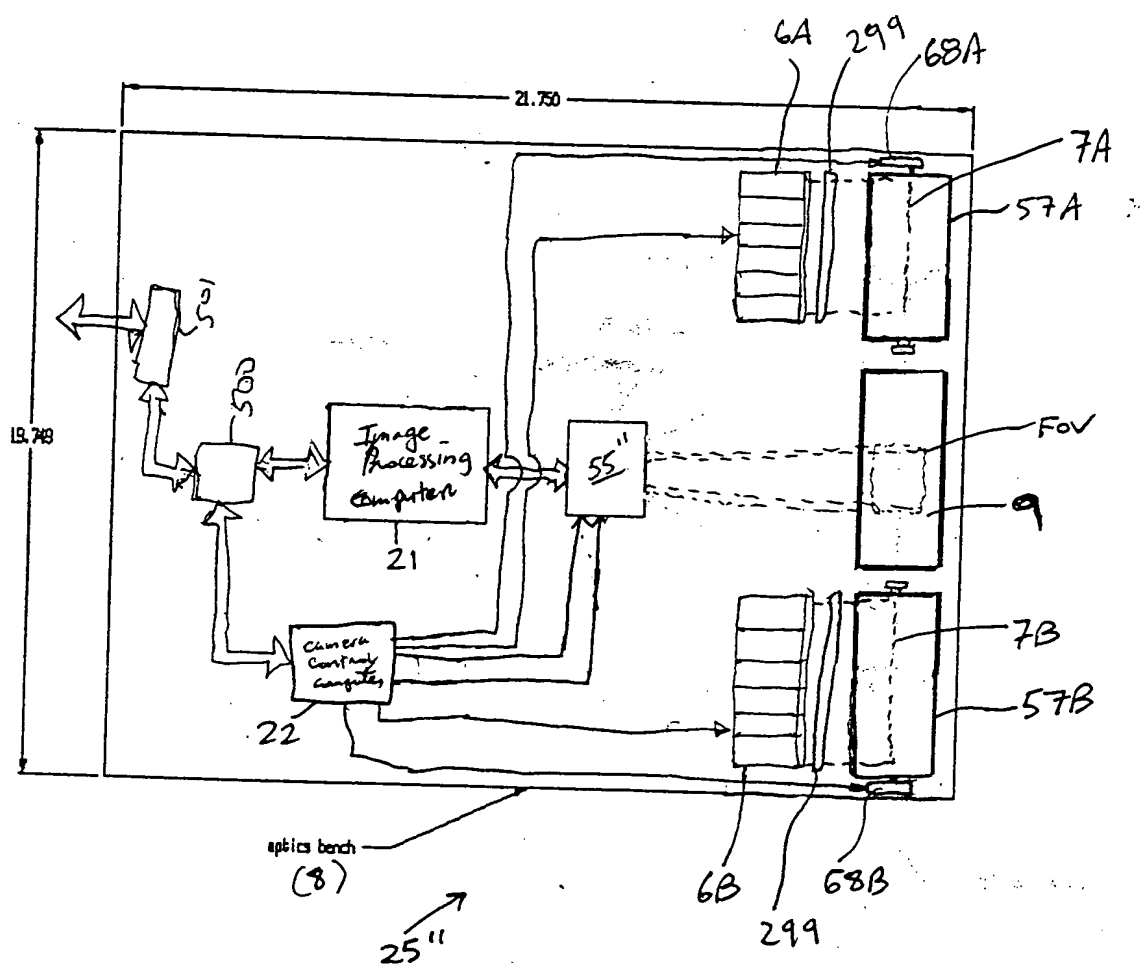
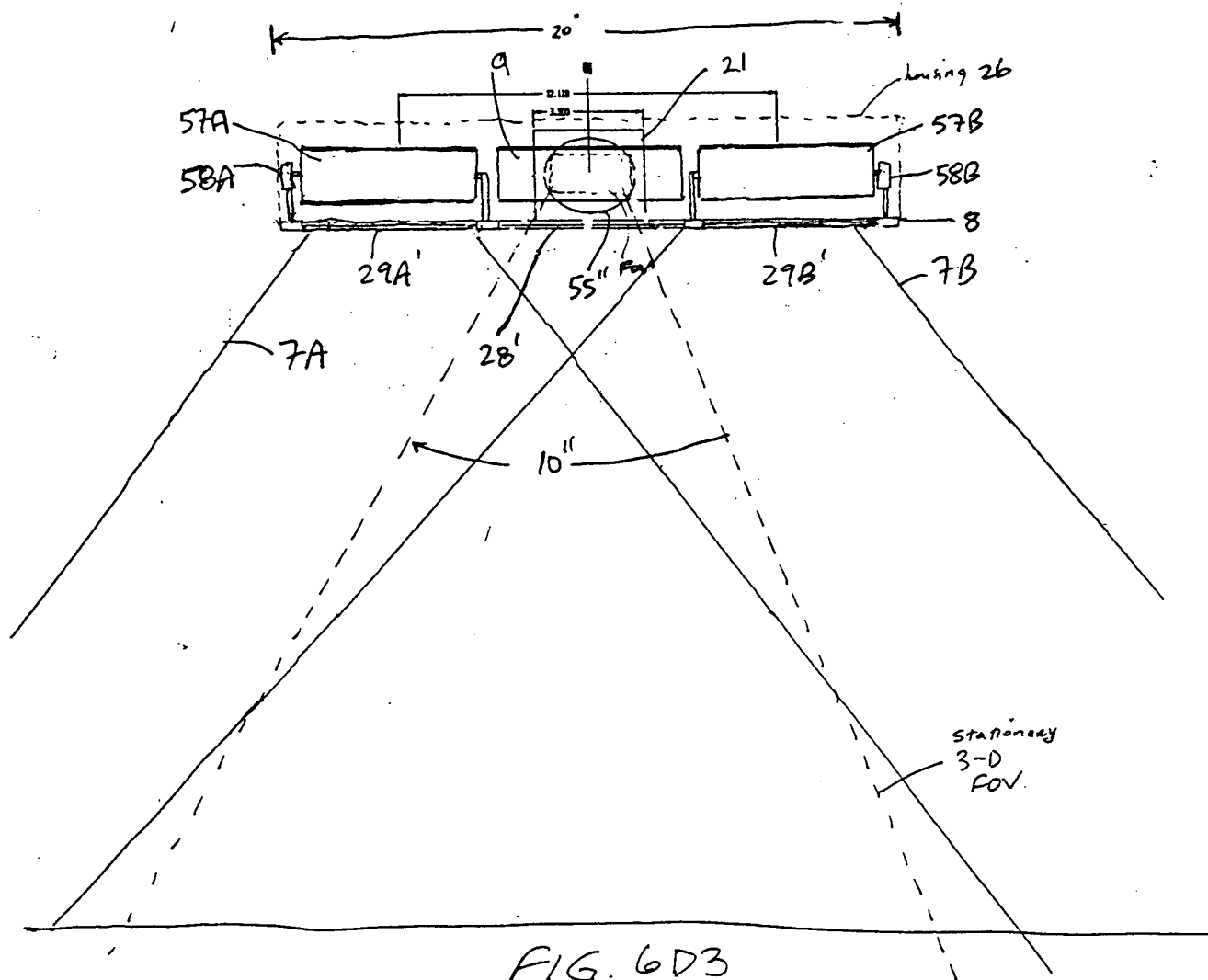


FIG. 6D2

09853130 4125001

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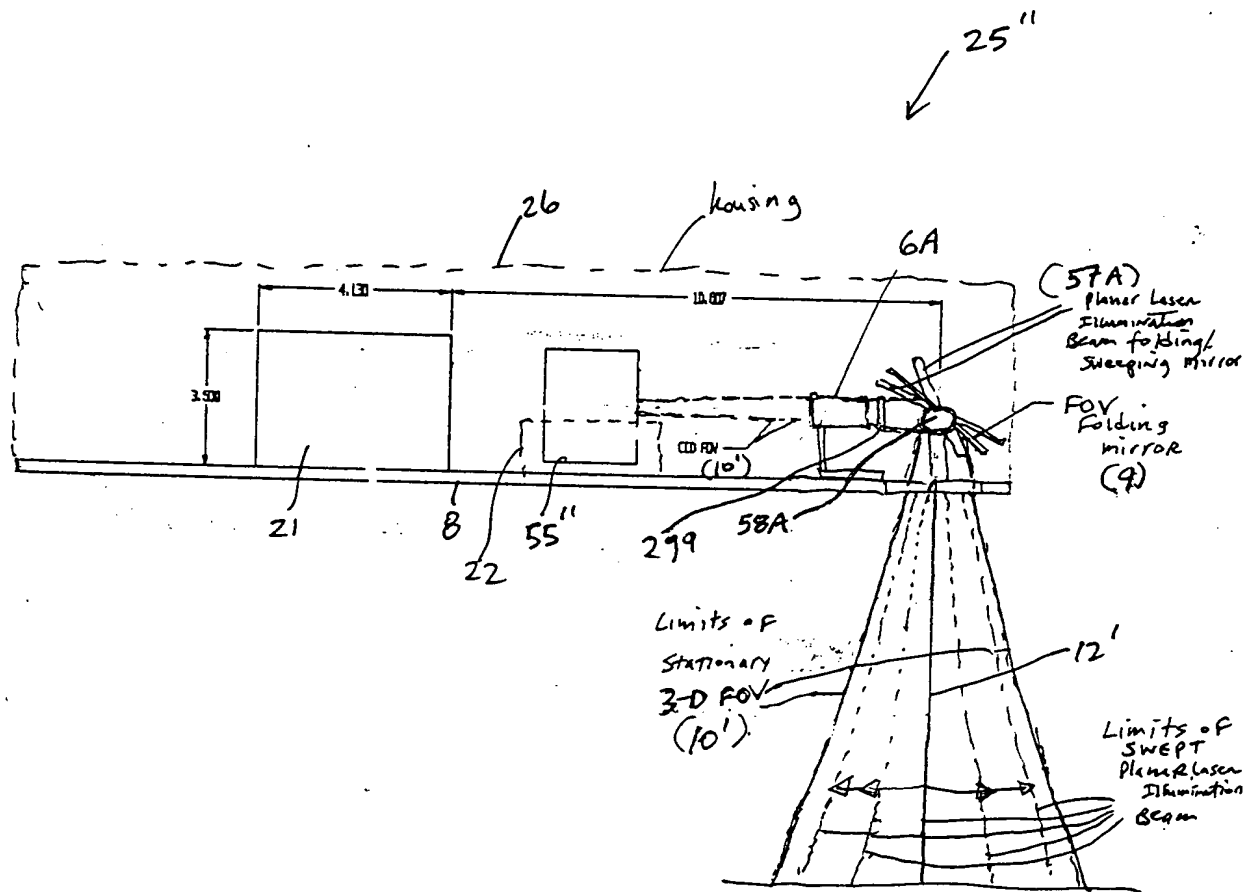


FIG. 6D4

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Variable FOV

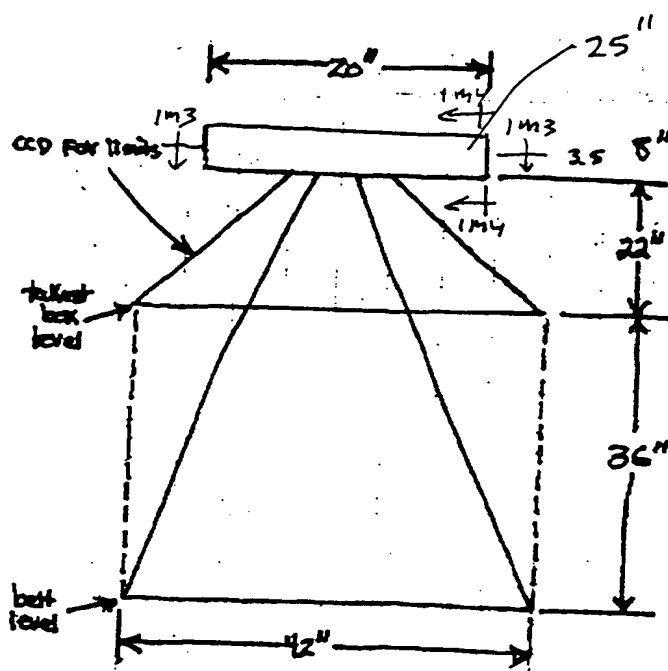


FIG. 6D5

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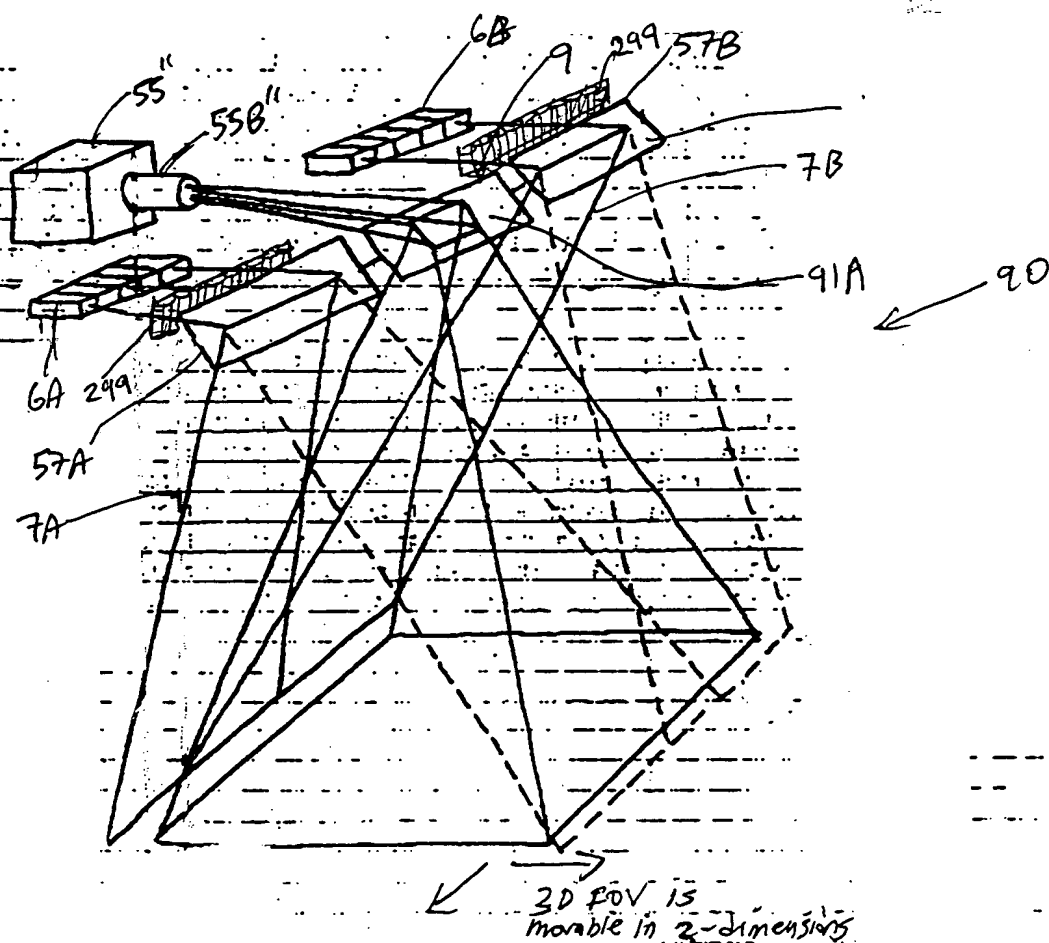


FIG 6E1

3
C

Hand-drawn schematic diagram of a multi-layered rectangular assembly. The diagram includes the following components and labels:

- Dimensions:**
 - $55''$: A dimension line indicating a length.
 - $55A$: A dimension line indicating a width.
 - $55B$: A dimension line indicating a depth.
- Components:**
 - 11A**: A rectangular block with a grid-like pattern on its top surface.
 - 6A**: A rectangular block positioned below 11A.
 - 57A**: A rectangular block positioned to the right of 11A and 6A.
 - 91A**: A rectangular block positioned below 57A.
 - 6B**: A rectangular block positioned below 11A.
 - 57B**: A rectangular block positioned to the right of 6B.
 - 91B**: A rectangular block positioned below 57B.
 - 92**: A rectangular block positioned to the right of 91B.
 - 4**: A rectangular block positioned below 92.
- Annotations:**
 - (1) Multi-layered length across ions**: A handwritten note pointing to the 11A component.
 - (2) Variable fluid distance**: A handwritten note pointing to the 55B dimension line.
- Other Labels:**
 - 90**: A label at the bottom right of the diagram.

90

FIG. 6f2.

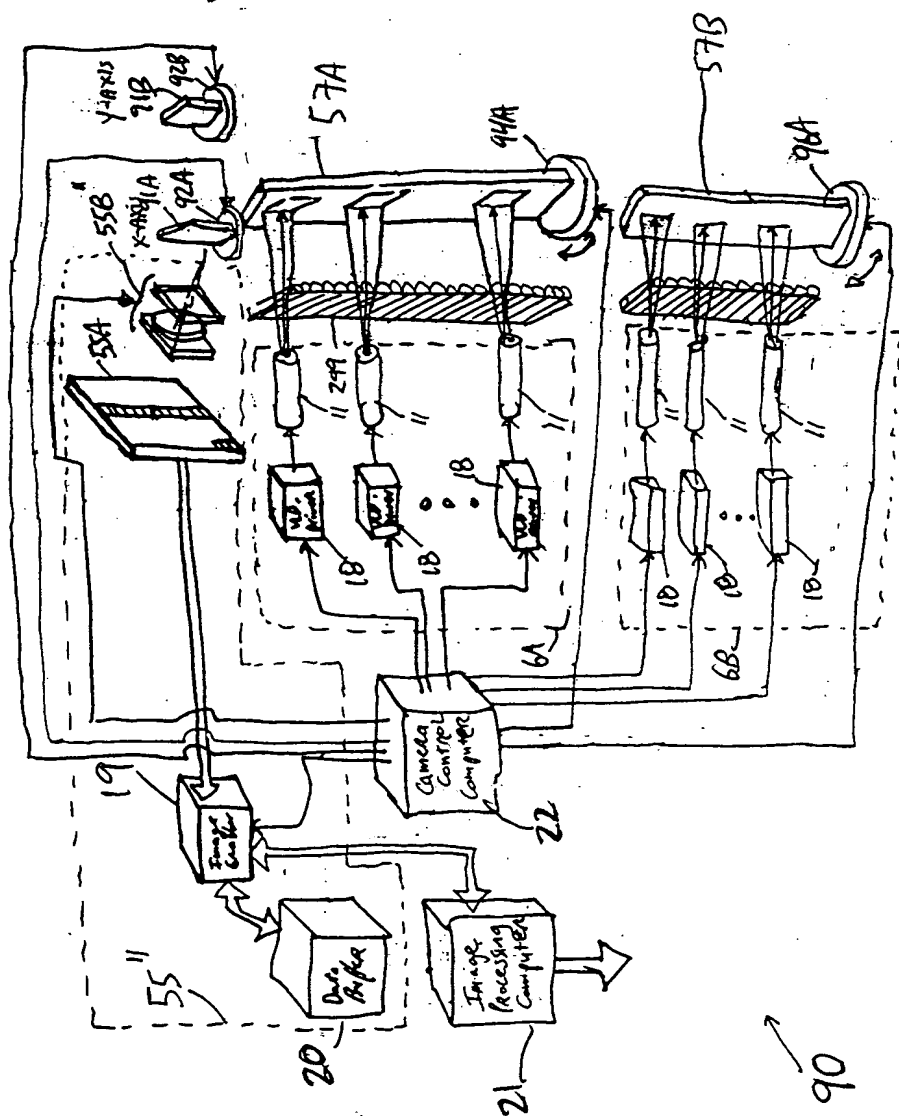


FIG. 6E3

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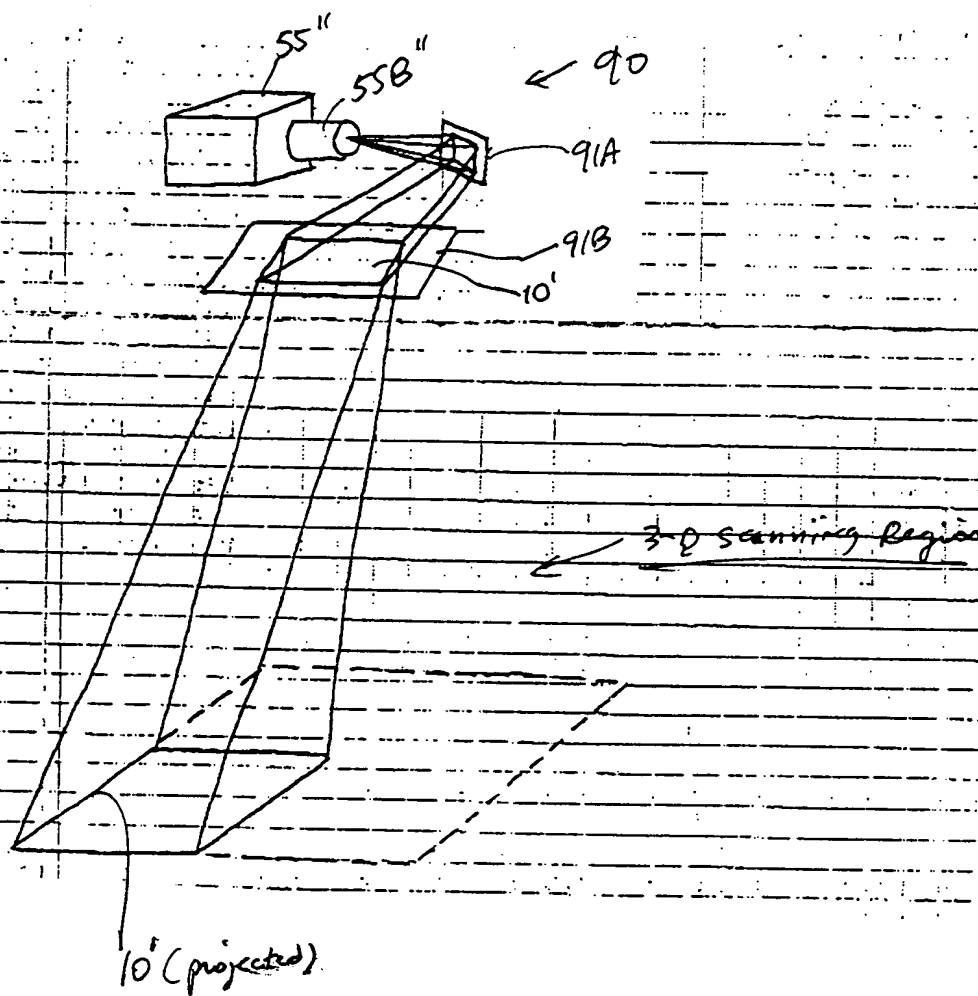
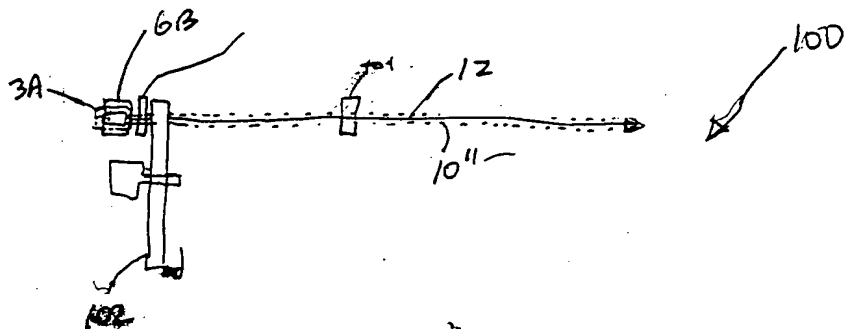
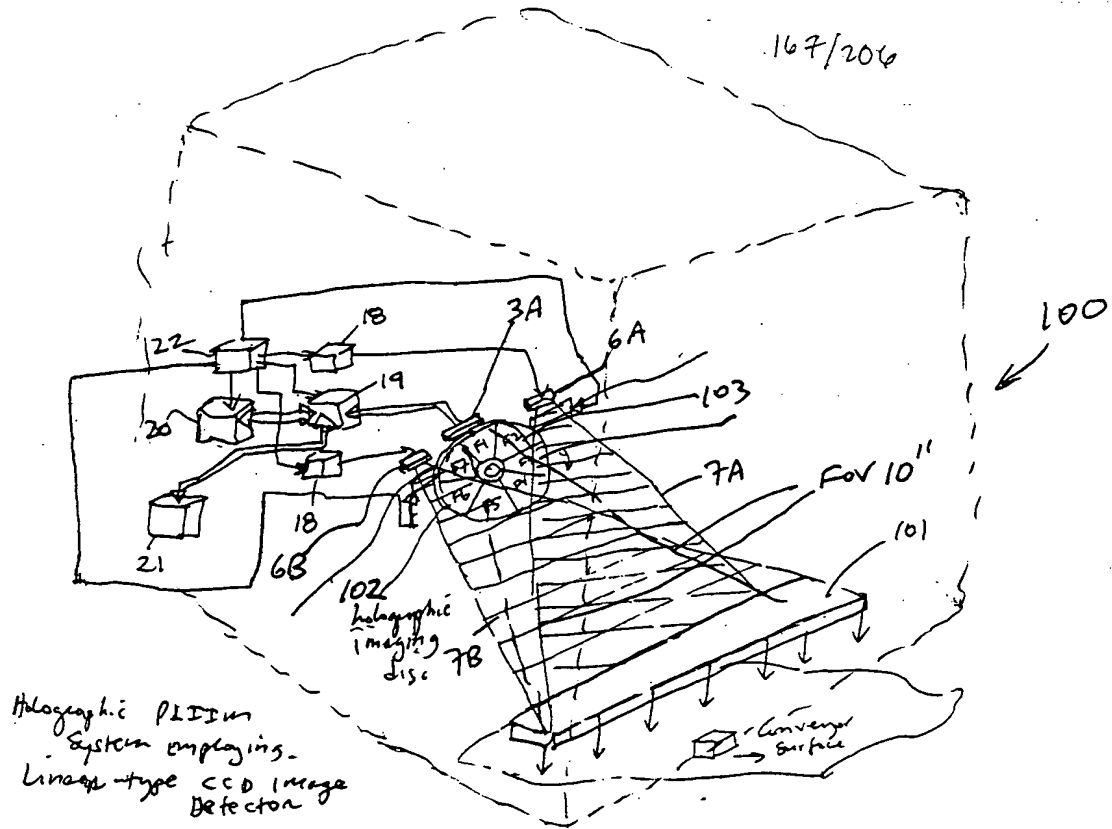


FIG. 6E4



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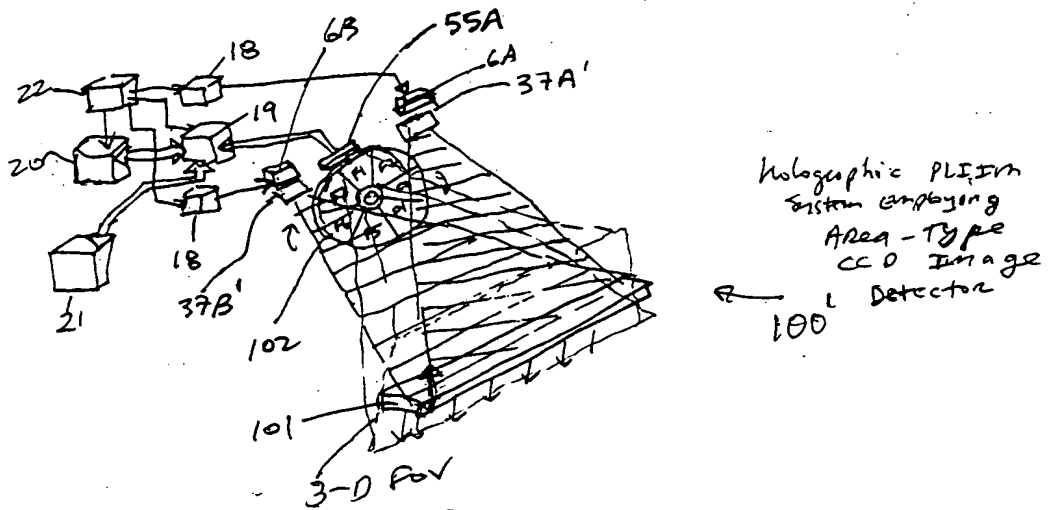


FIG. 8A

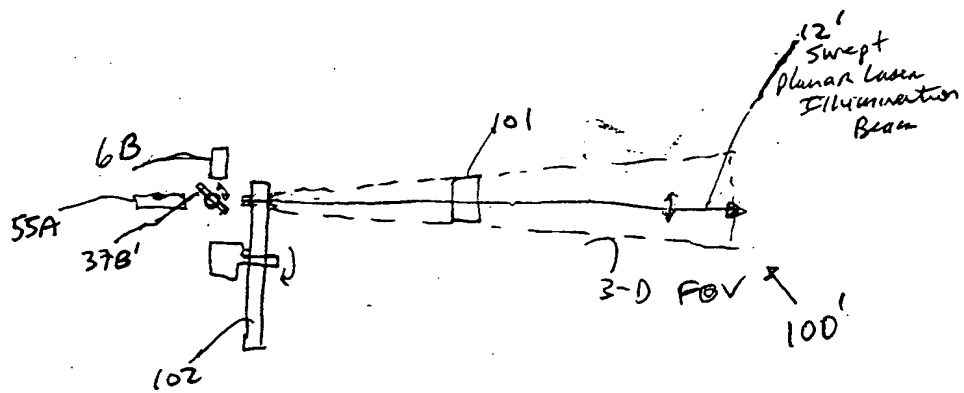


FIG. 8B

1-D CCD SCANNER EMBODIMENT

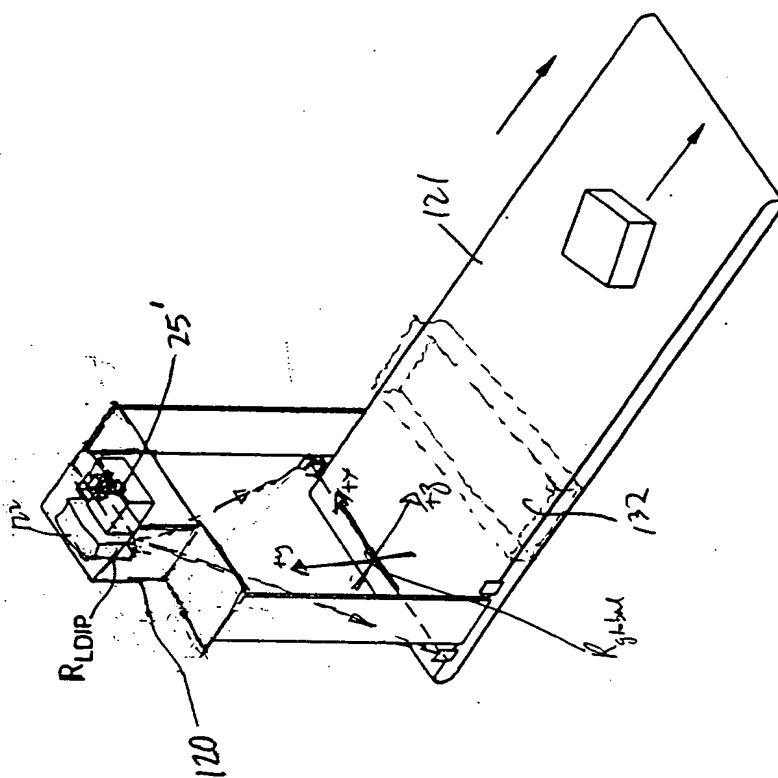
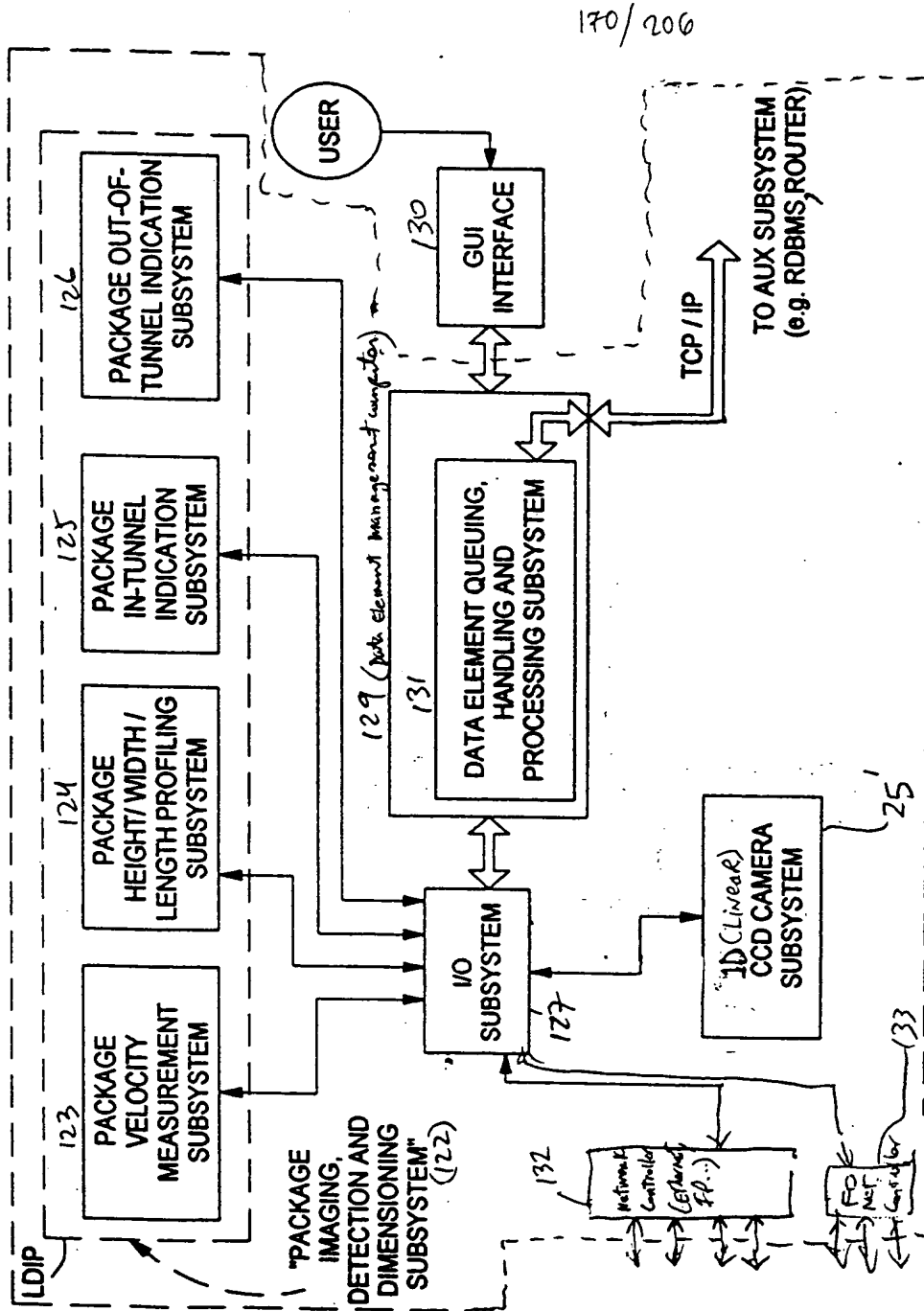


FIG. 9



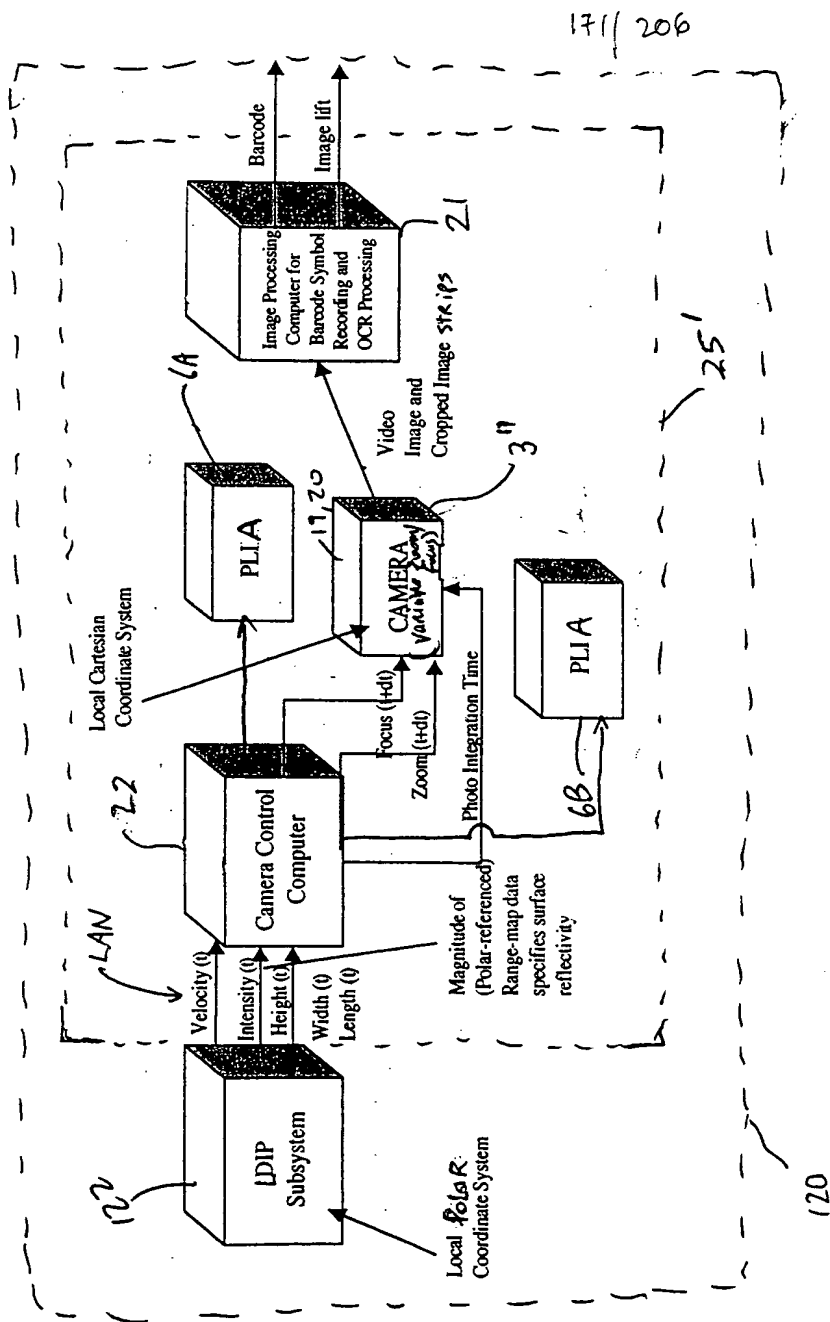


FIG. 11

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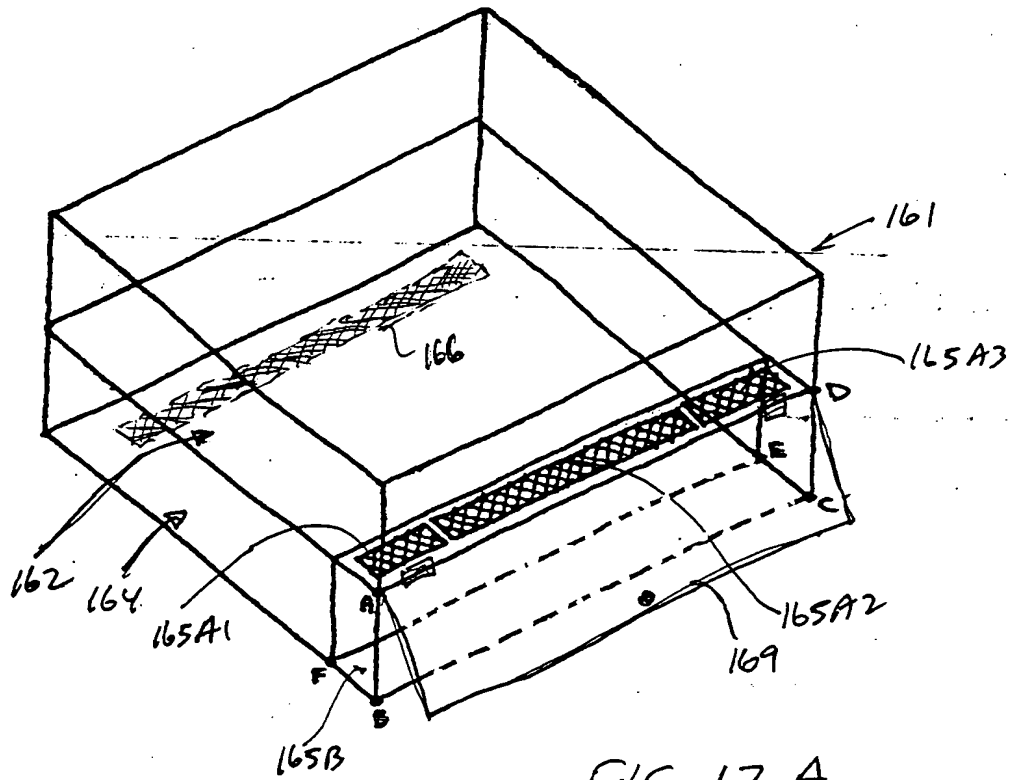
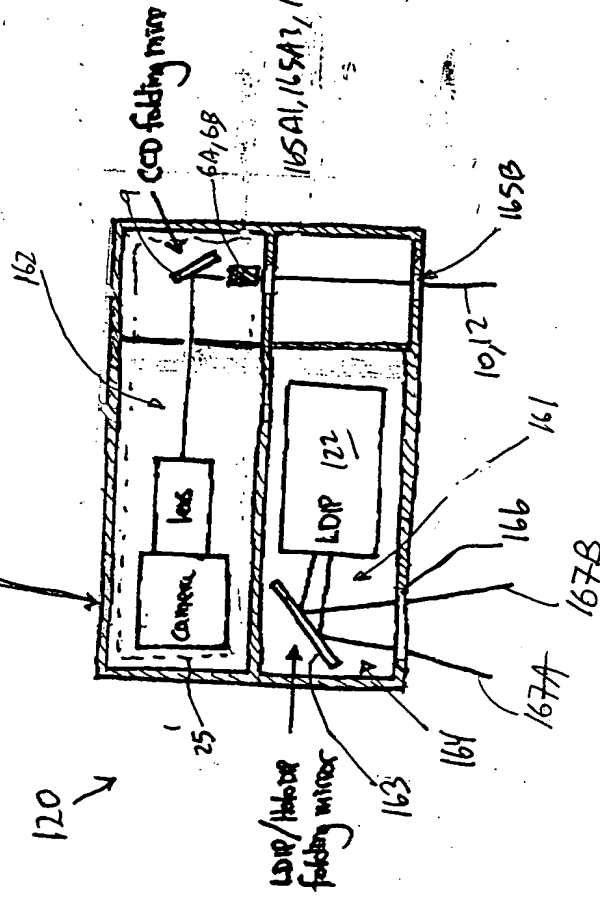
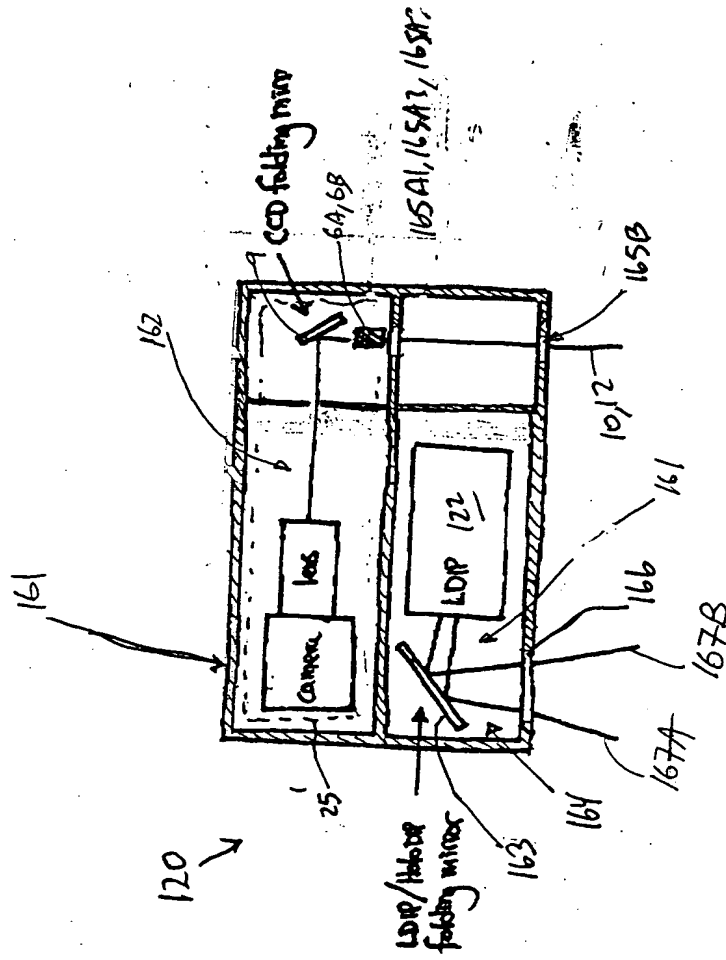


FIG. 12A



109211 0213350

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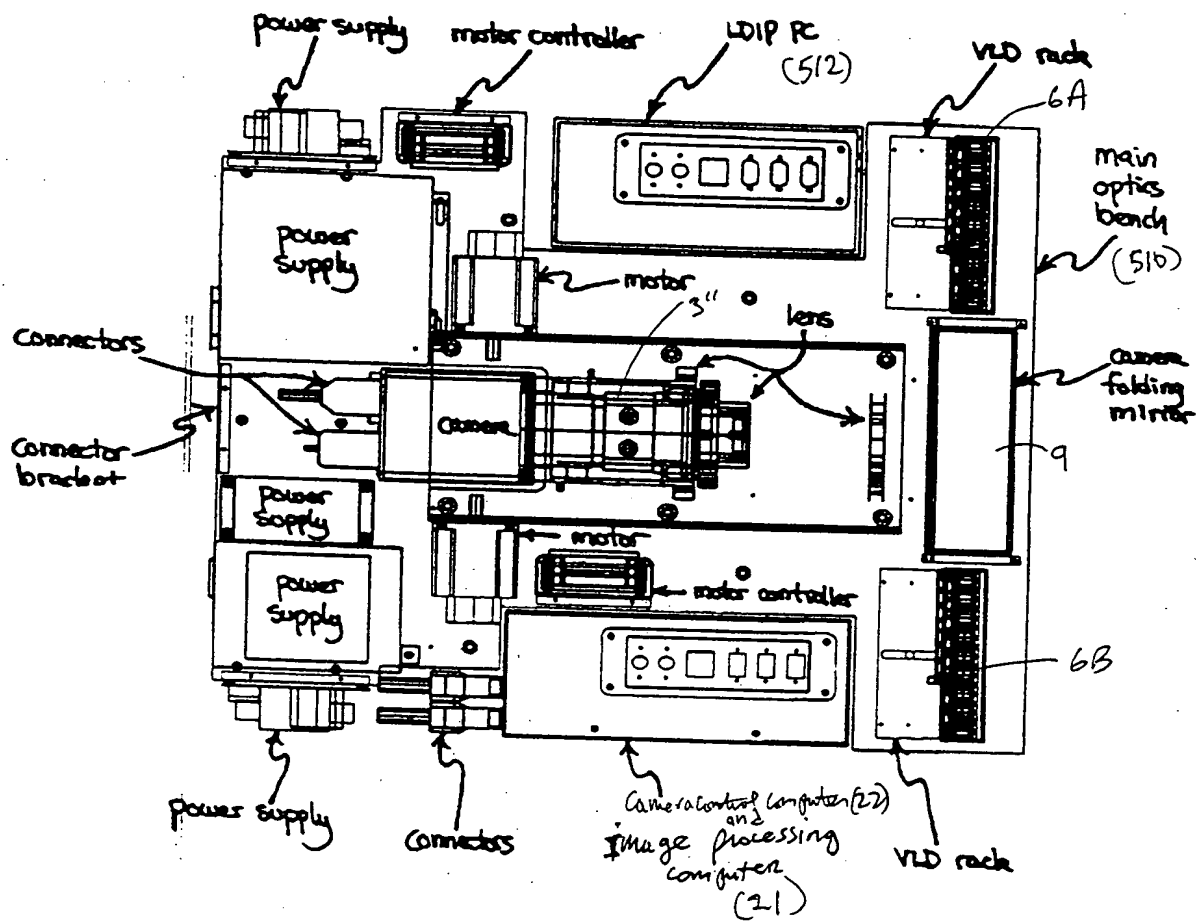


FIG. 12C

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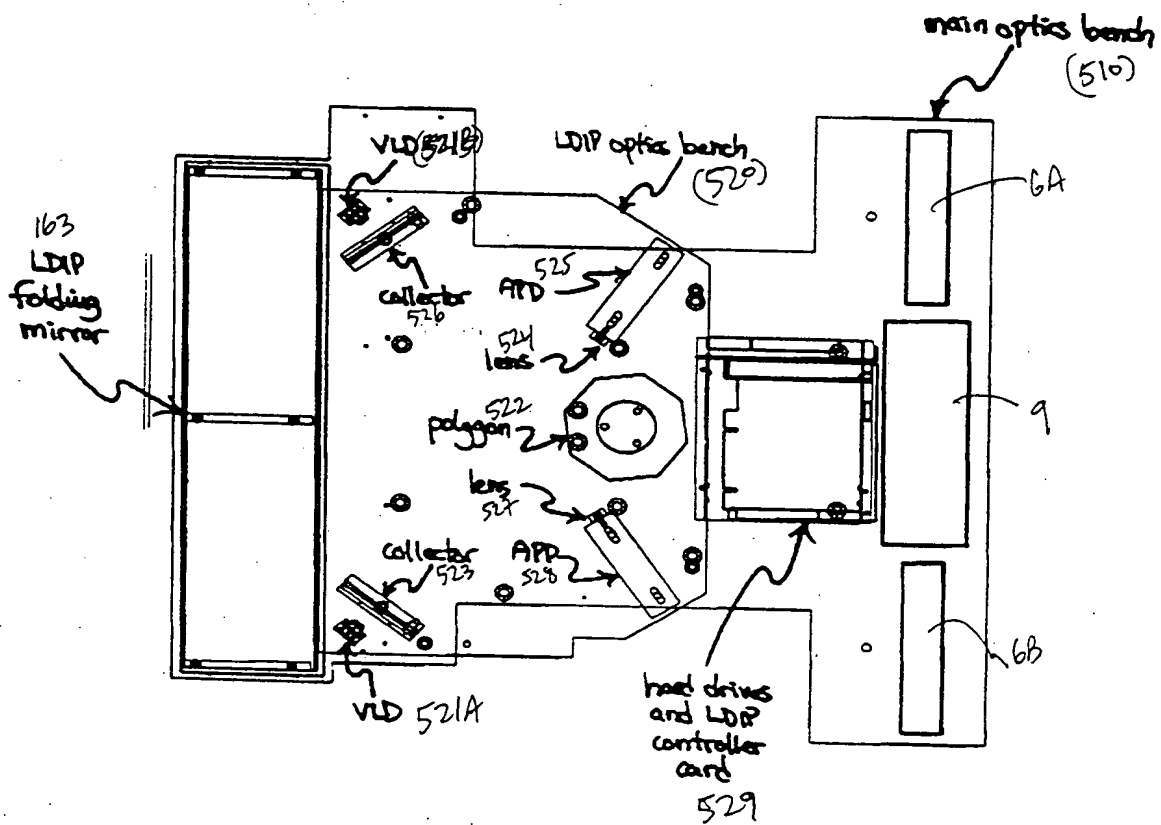
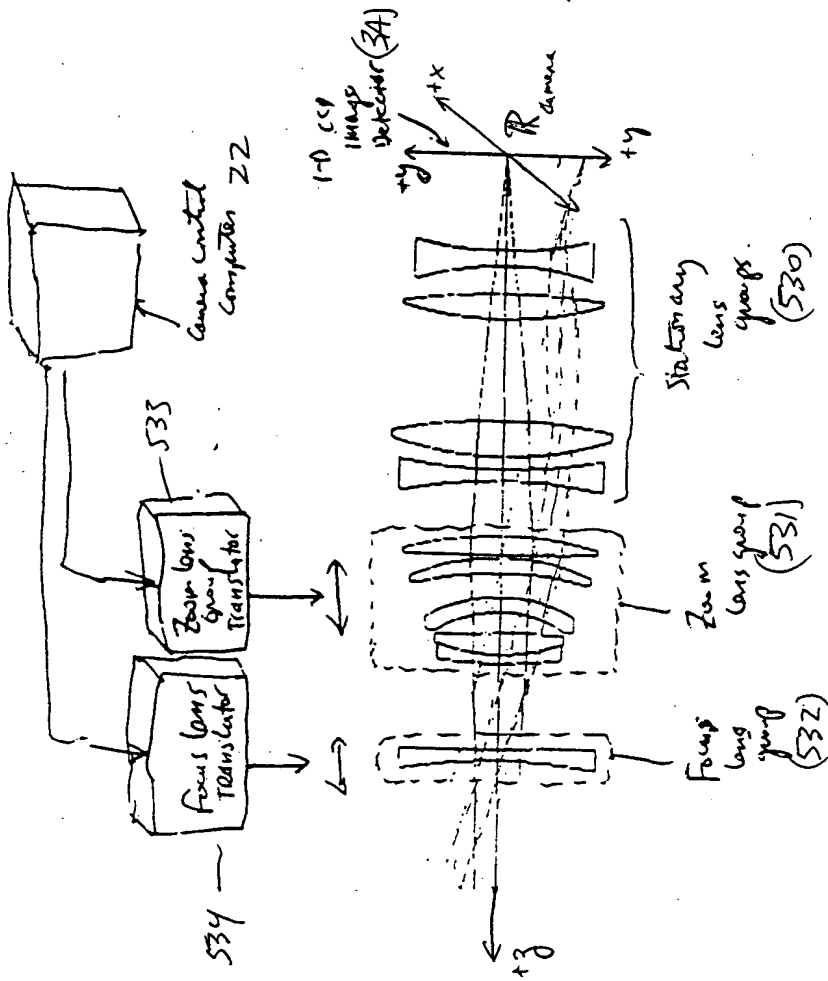


FIG. 12D

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(main optics)
(lens groups)

FIG. 12E

09887130 413601

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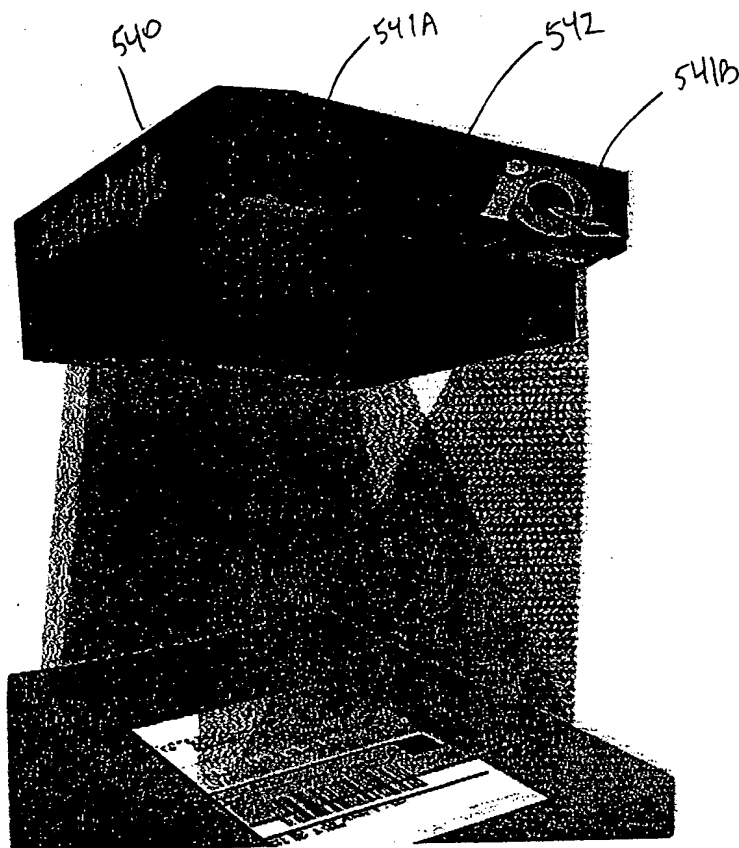


FIG. 13A

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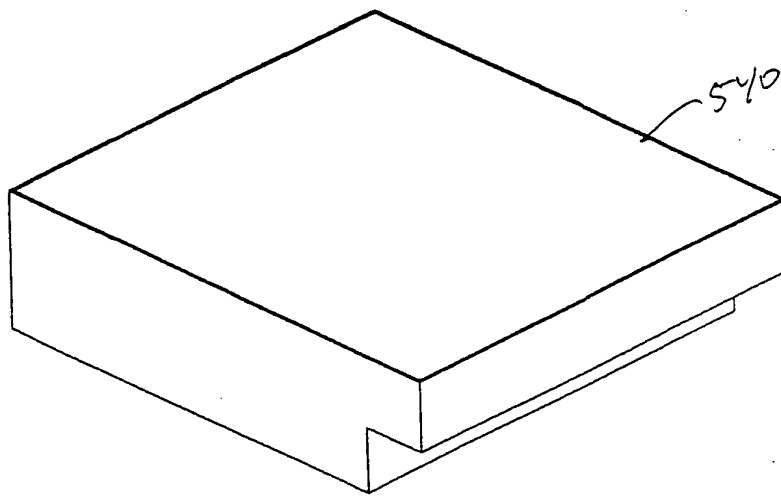


FIG. 13B

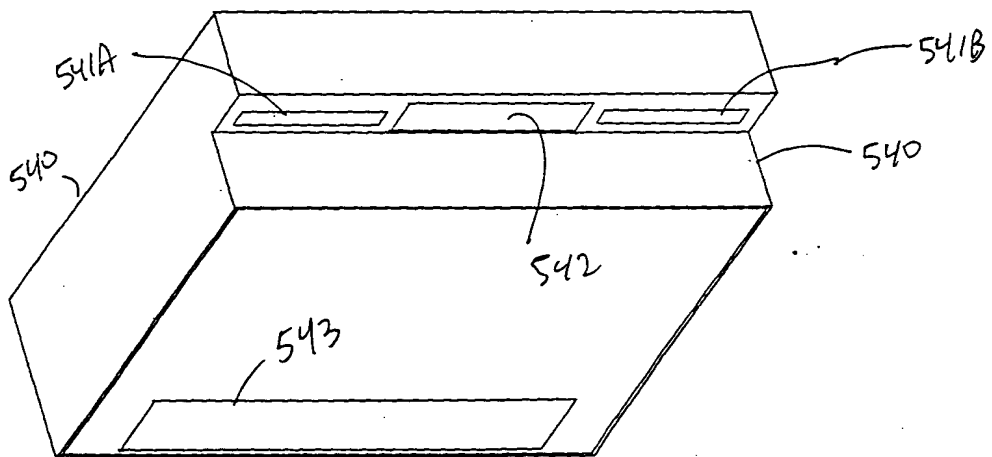


FIG. 13C

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PLLIM-BASED PACKAGE IDENTIFICATION AND DIMENSIONING (PID) SYSTEM

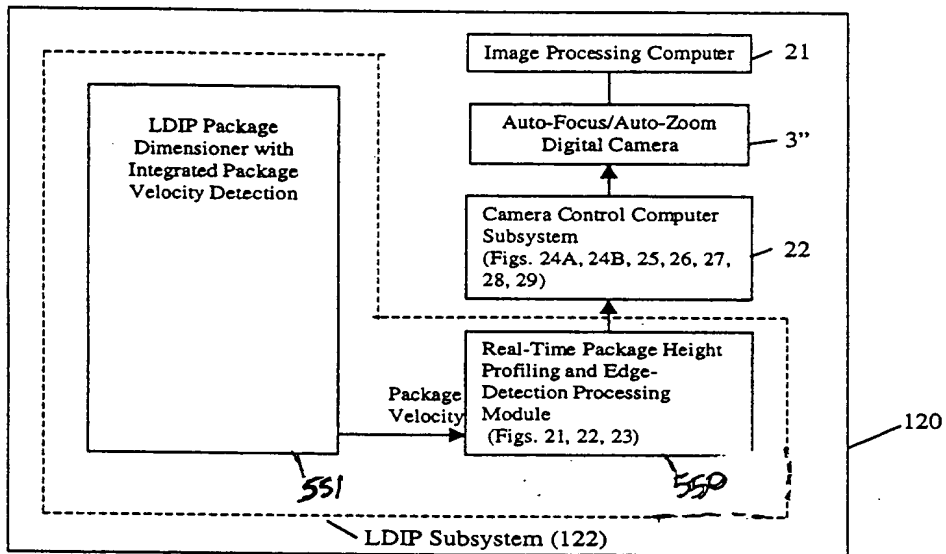


FIG. 14

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LDIP REAL-TIME PACKAGE HEIGHT PROFILE AND EDGE DETECTION METHOD

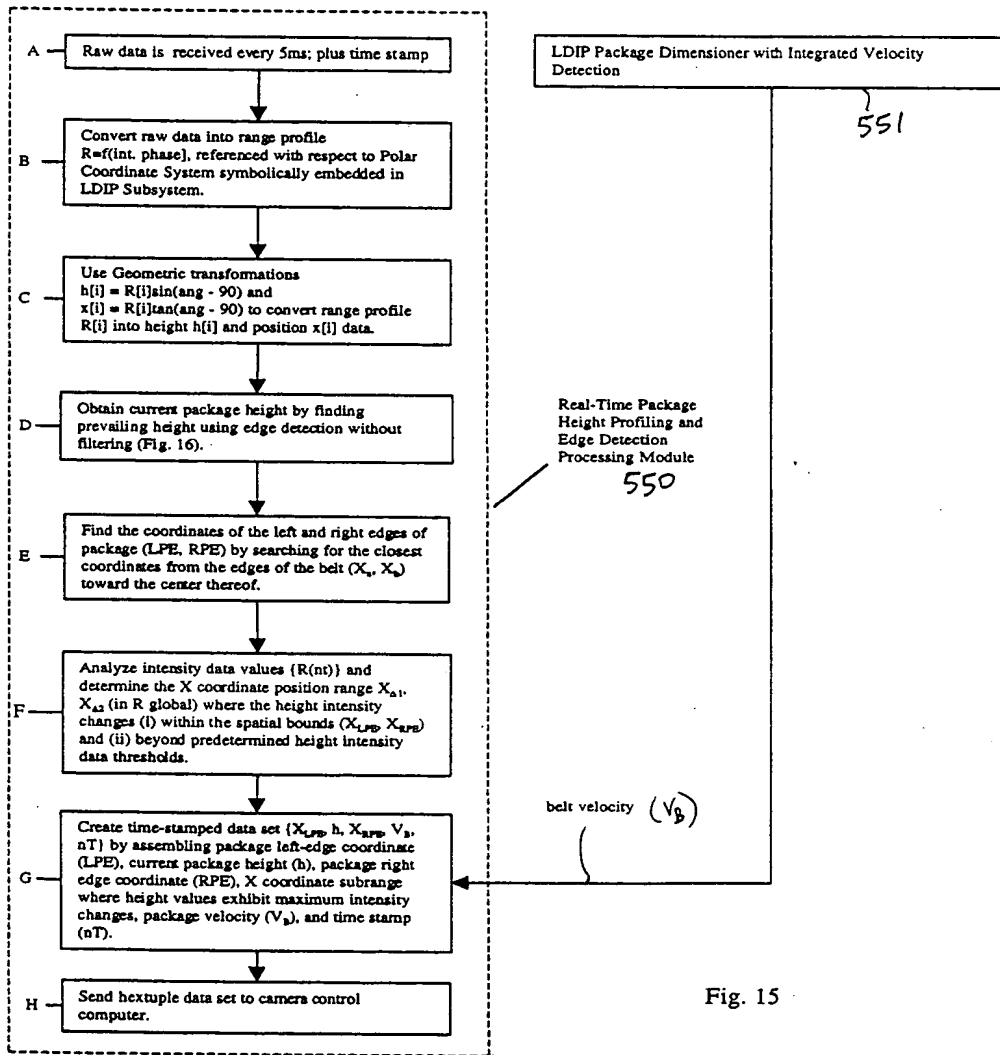
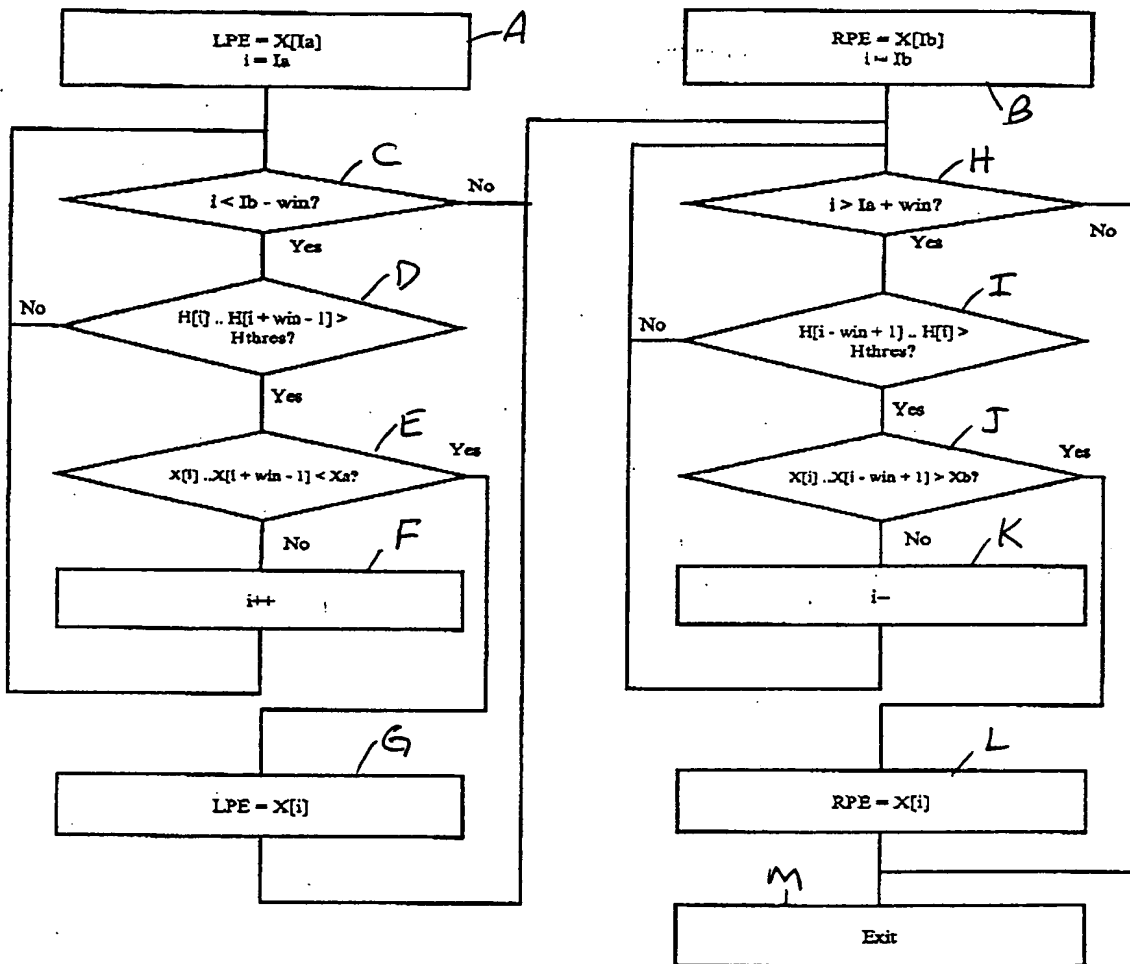


Fig. 15

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LDIP Real Time Package Edge Detection



Xa = location of belt left edge; Xb = location of belt right edge
 Ia = belt edge edge pixel; Ib = belt right edge pixel
 LPE = Left package edge; RPE = Right package edge
 H[] = Pixel height array; X[] = Pixel location array
 win = package detection window

FIG. 16

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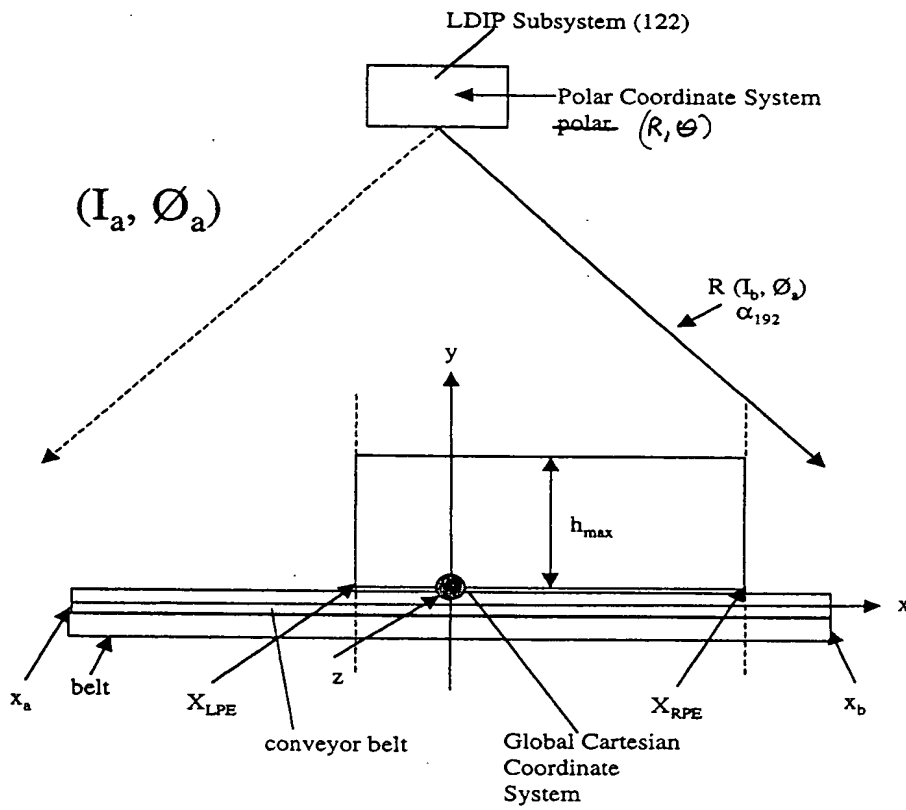


Fig. 17

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INFORMATION MEASURED AT SCAN ANGLES BEFORE COORDINATE TRANSFORMS

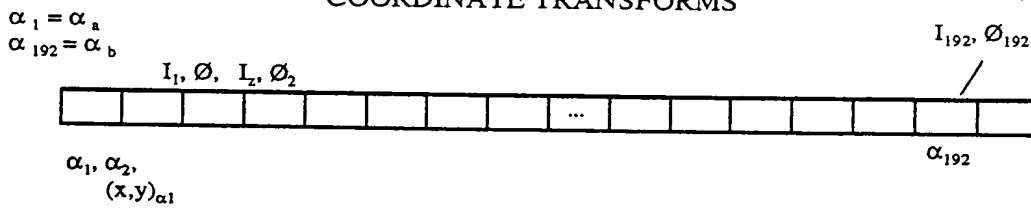


Fig. 17A

RANGE AND POLAR ANGLE MEASURES TAKEN AT SCAN ANGLE α BEFORE COORDINATE TRANSFORMS



Fig. 17B

MEASURED PACKAGE HEIGHT AND POSITION VALUES AFTER COORDINATE TRANSFORMS

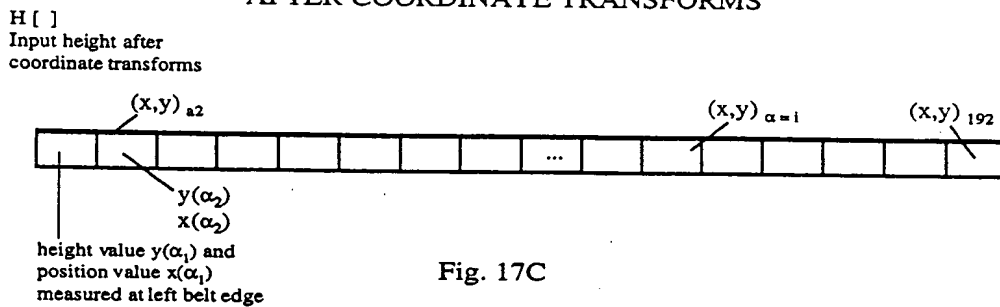


Fig. 17C

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CAMERA CONTROL PROCESS CARRIED OUT WITHIN THE CAMERA CONTROL SUBSYSTEM OF EACH OBJECT ATTRIBUTE ACQUISITION AND ANALYSIS SYSTEM

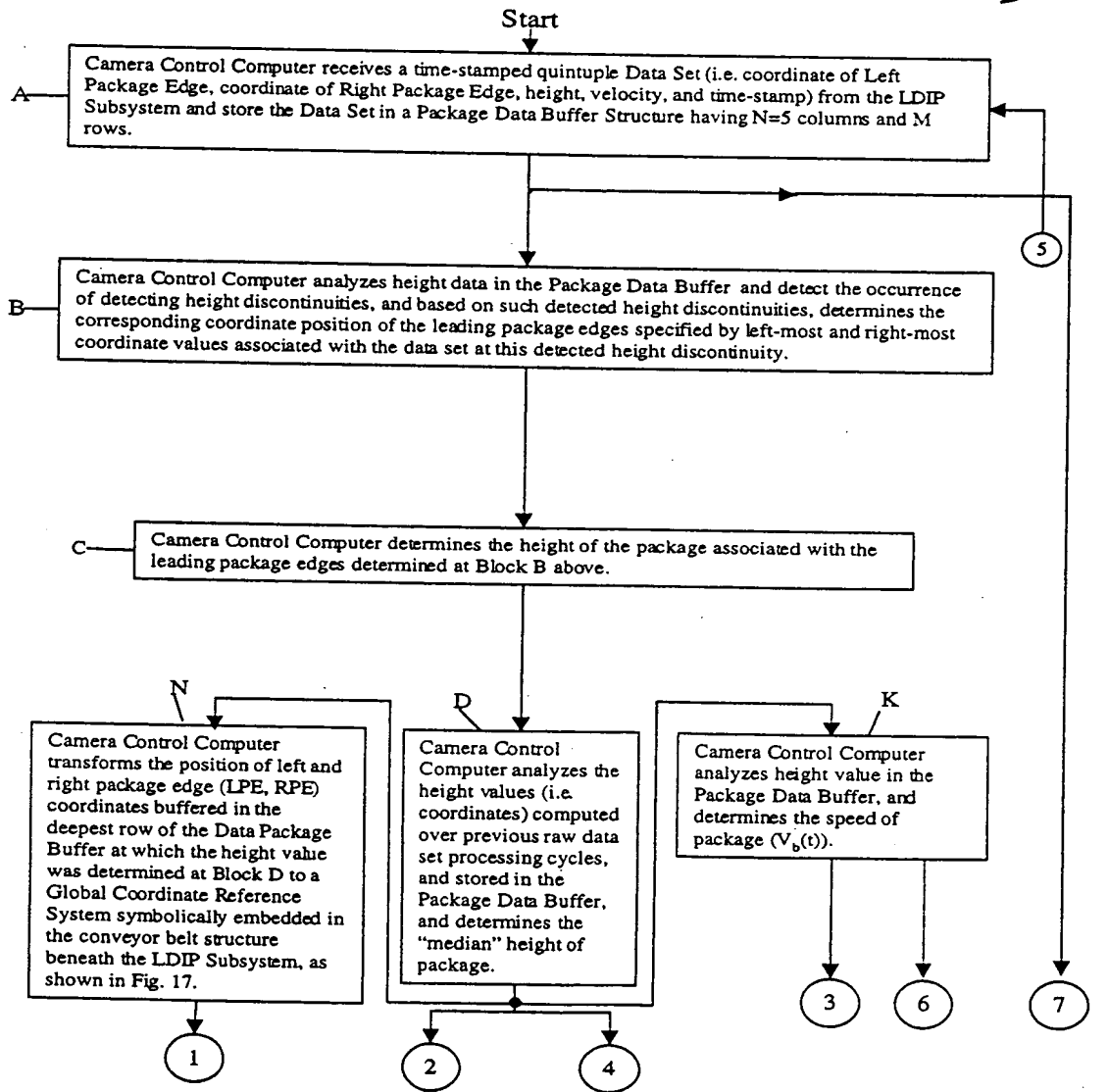


Fig. 18A

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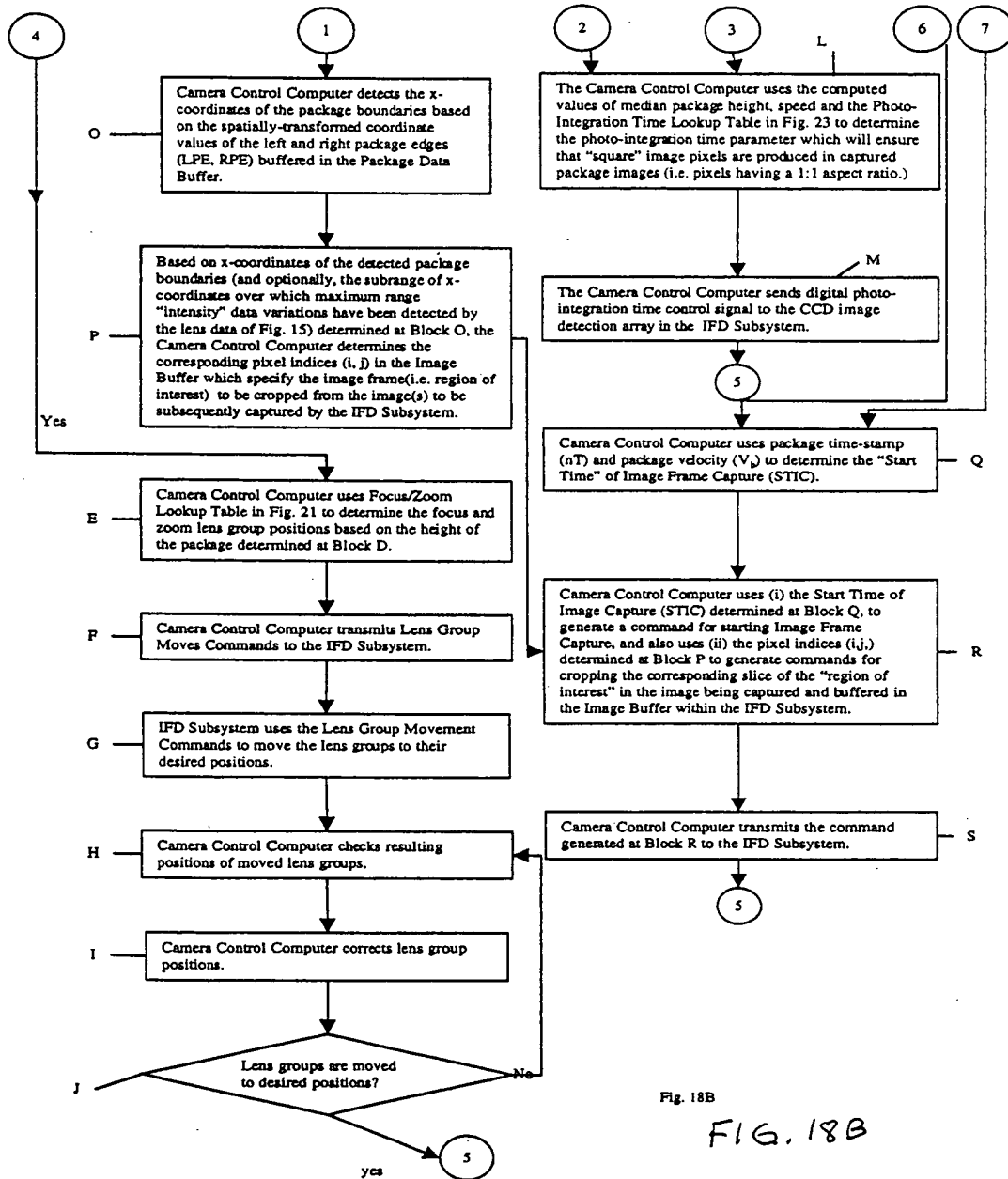


Fig. 18B

FIG. 18B

2025-10-10 10:10:10

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x coordinate subrange where maximum
range "intensity" variations have been
detected

Left Package Edge (LDE)	Package Height (h)	Right Package Edge (RPE)	Package Velocity	Time-stamp (nT)	
					Row 1
					Row 2
					Row 3
					Row 4
					Row 5
					Row M

Package Data Buffer (FIFO)

Fig. 19

Columns →																			
↓ Rows																			

Camera Pixel Data Buffer
pixel indices (i,j)

Fig. 20

Zoom and Focus Lens Group Position
Look-up Table

Distance from Camera H (mm)	Zoom group distance (mm) Y (Zoom)	Focus group distance (mm) Y (Focus)
1000	21.57489228	2.47E-05
1100	19.38089696	10.99009783
1200	17.10673434	20.65783177
1300	14.77137314	29.10917002
1400	12.39153565	36.47312595
1500	9.979114358	42.87845436
1600	7.540639114	48.44003358
1700	5.078794775	53.25495831
1800	2.595989366	57.40834303
1900	0.099972739	60.98883615

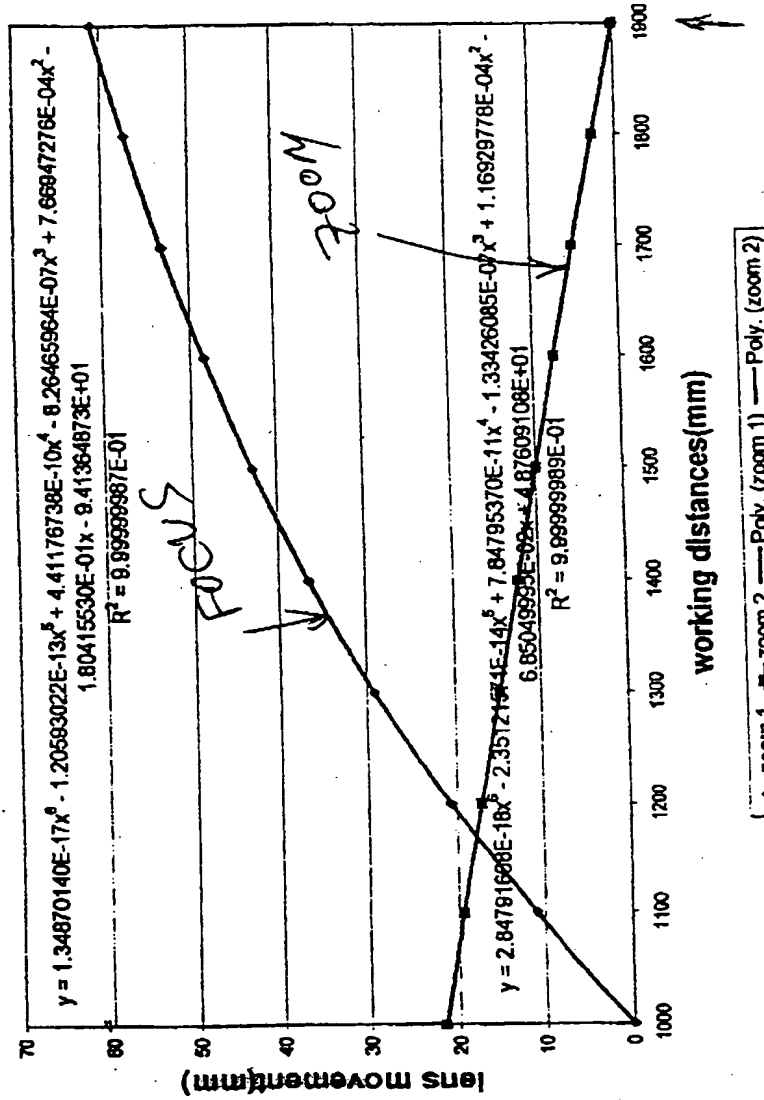
(use
interpolation
techniques
for walking
distances
between listed
points in
table)

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FIG. 21

* Note: On focal distance & zoom (off. focal length) +
 zoom lens are coupled (interdependent) in
 camera lens
 * fixed aperture F5.6

Focus and Zoom lens movement vs. working distances



4 inches above conveyor belt
 Package height above conveyor
 Conveyor-belt surface

FIG. 22

Photo-Integration Time Look-up Table

1000(m) Distance from camera (package height above conveyor)
1.800(m)

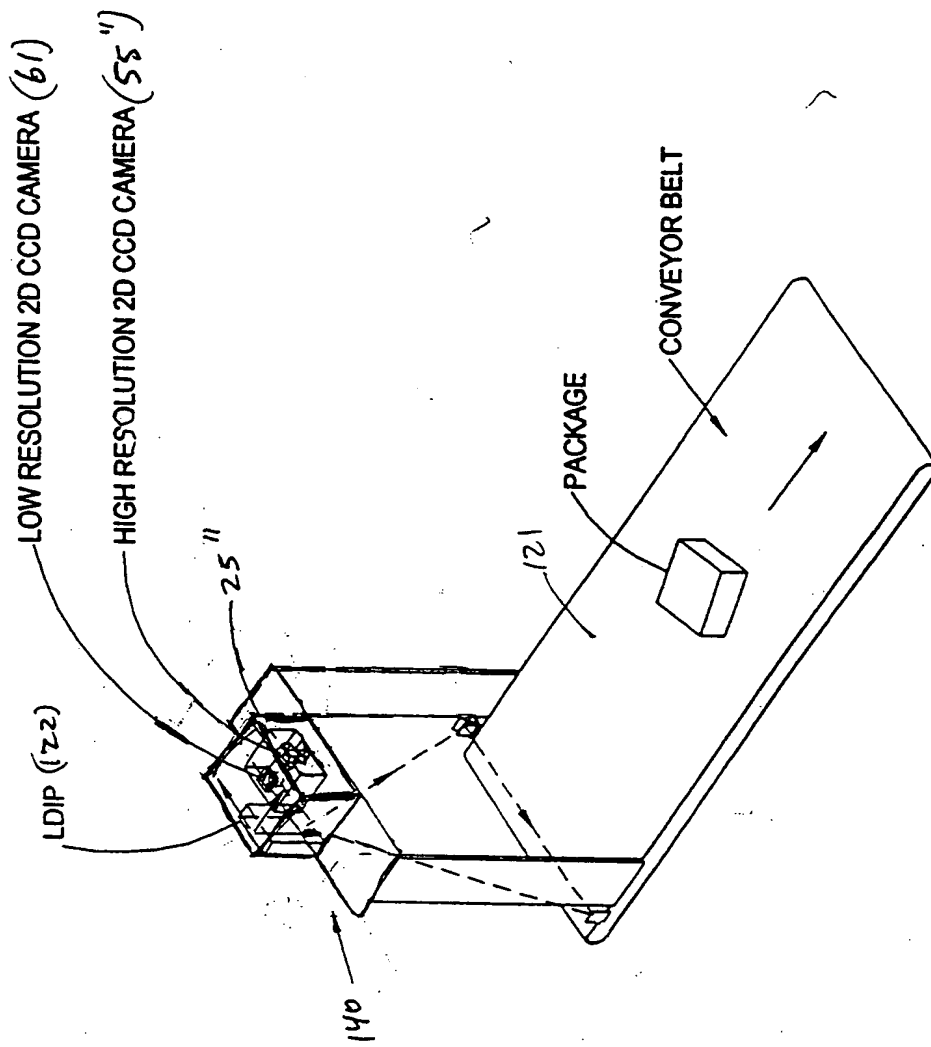
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10 best speed (package velocity)

600 feet per minute
(FPM)

FIG. 23

Photo-integration
time values that
ensures square image pixels
(1:1 aspect ratio)



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FIG 24

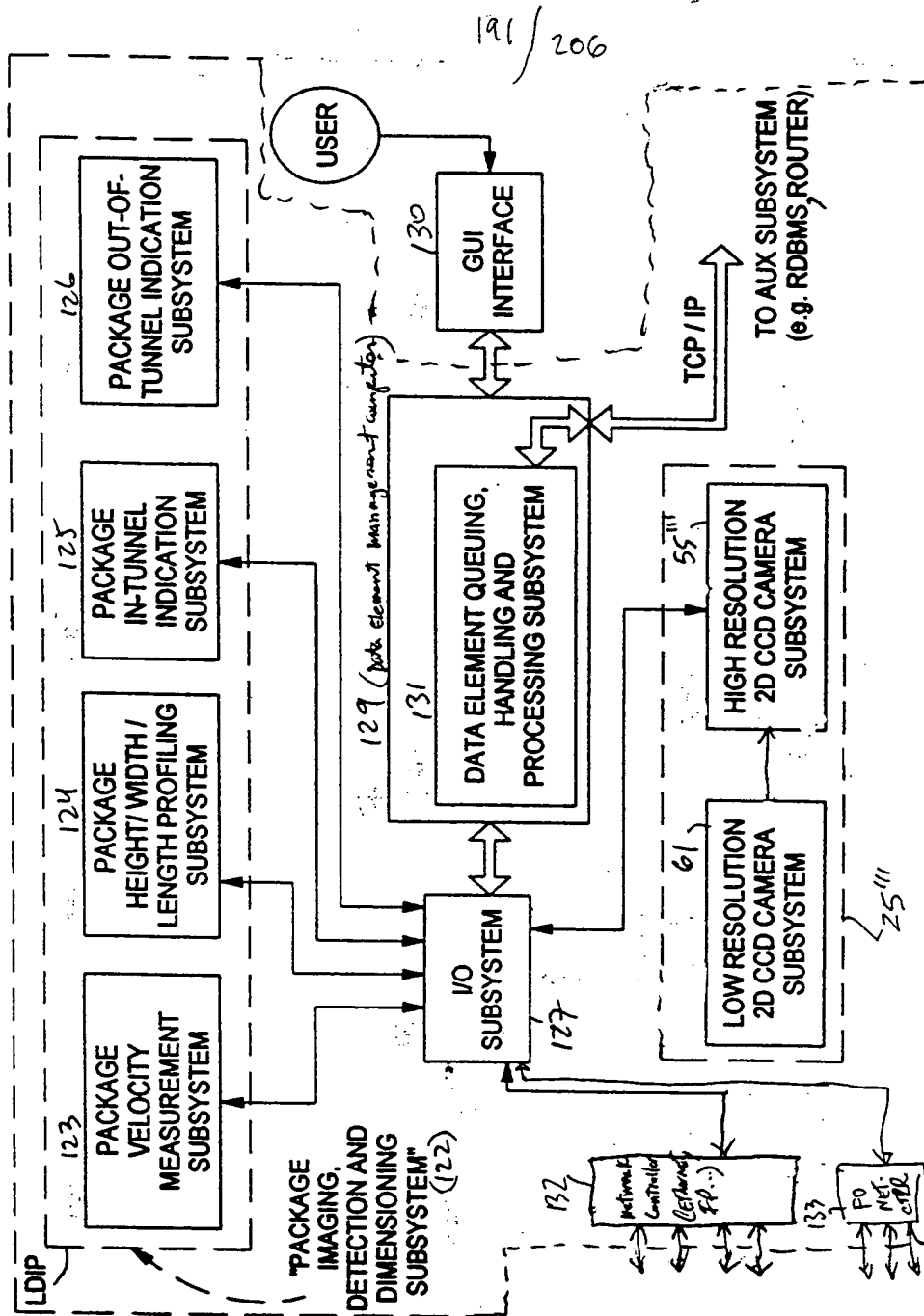


FIG. 25

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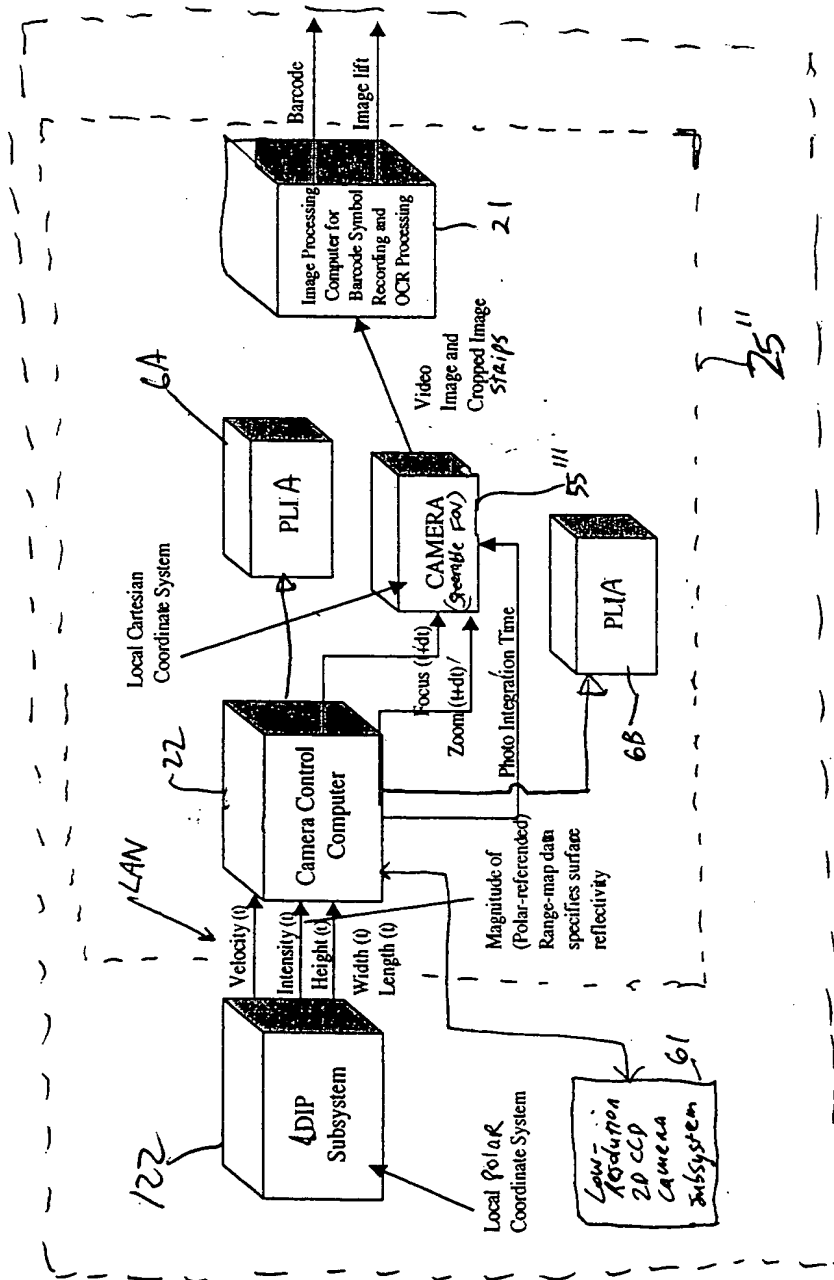
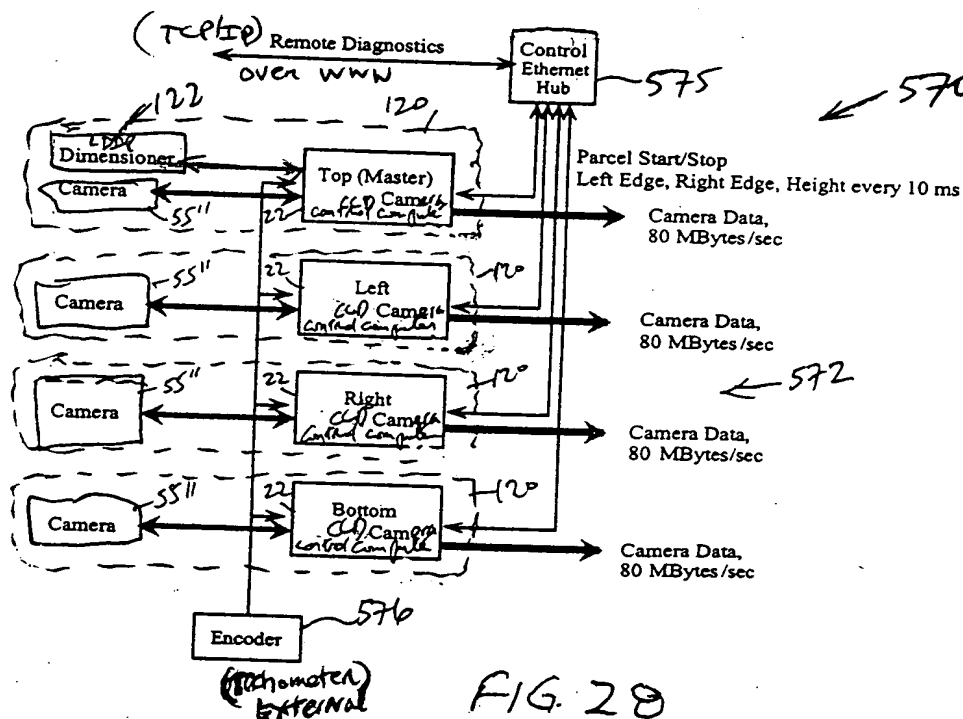
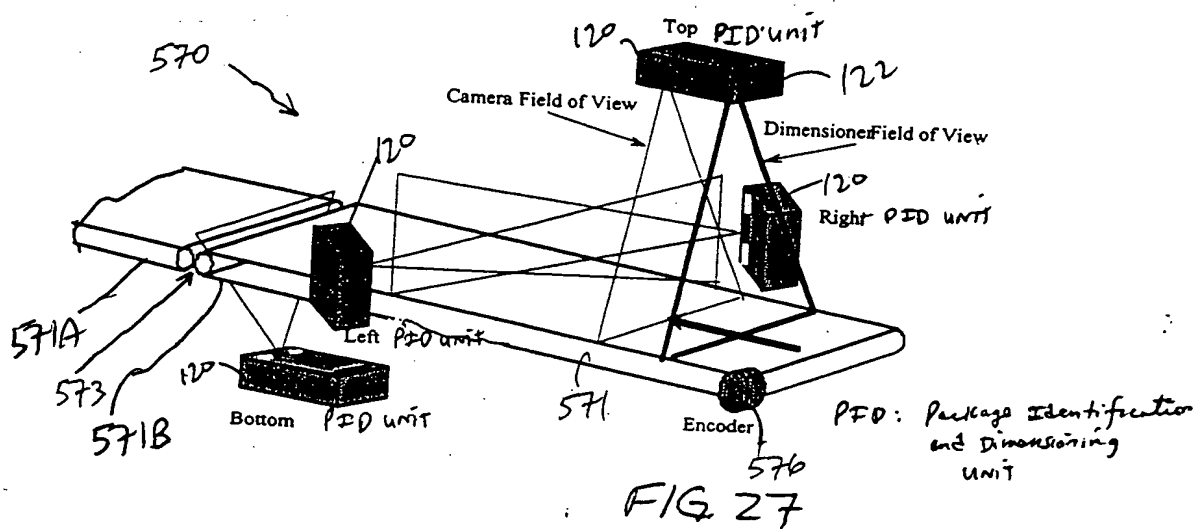


FIG. 26

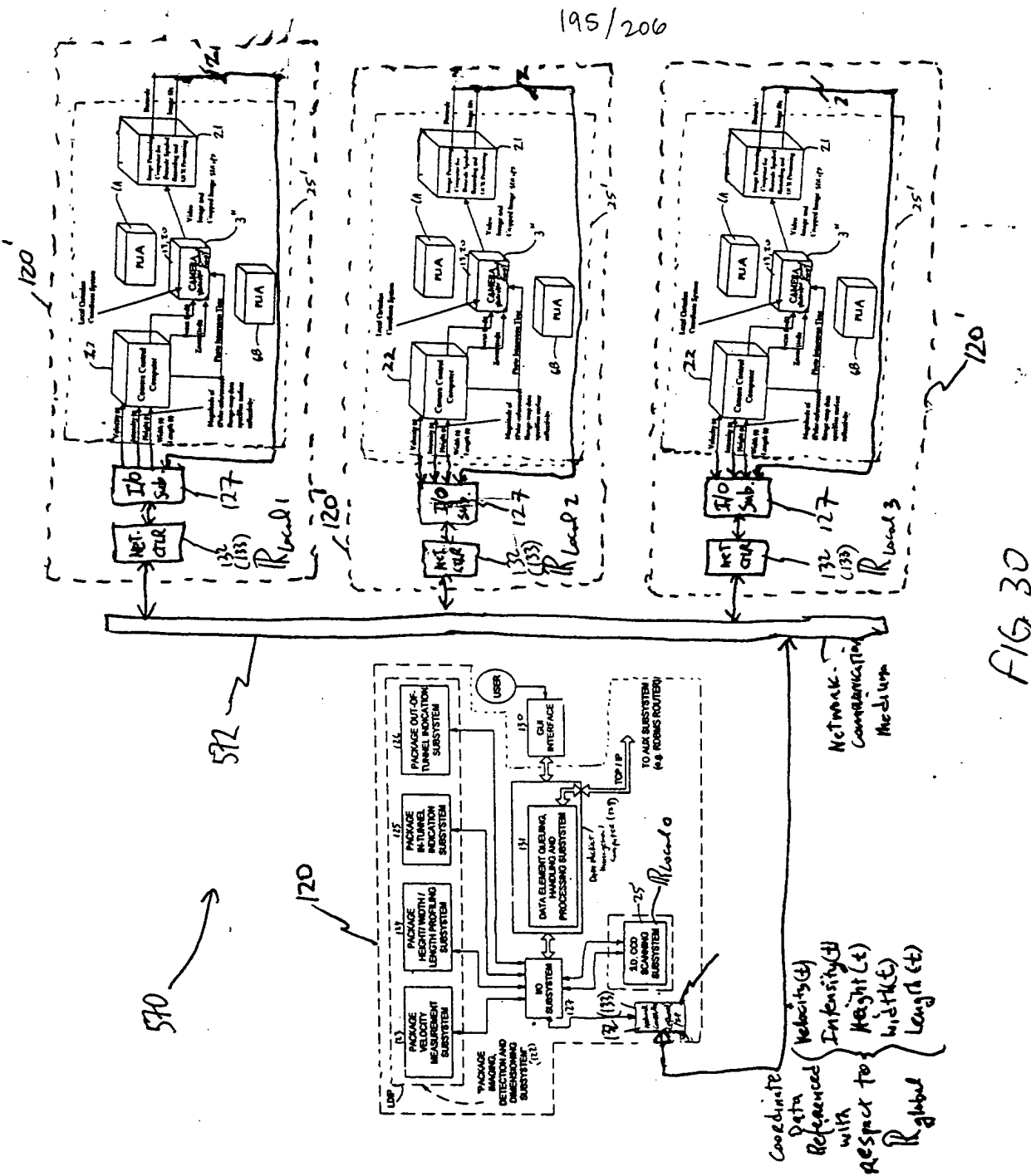
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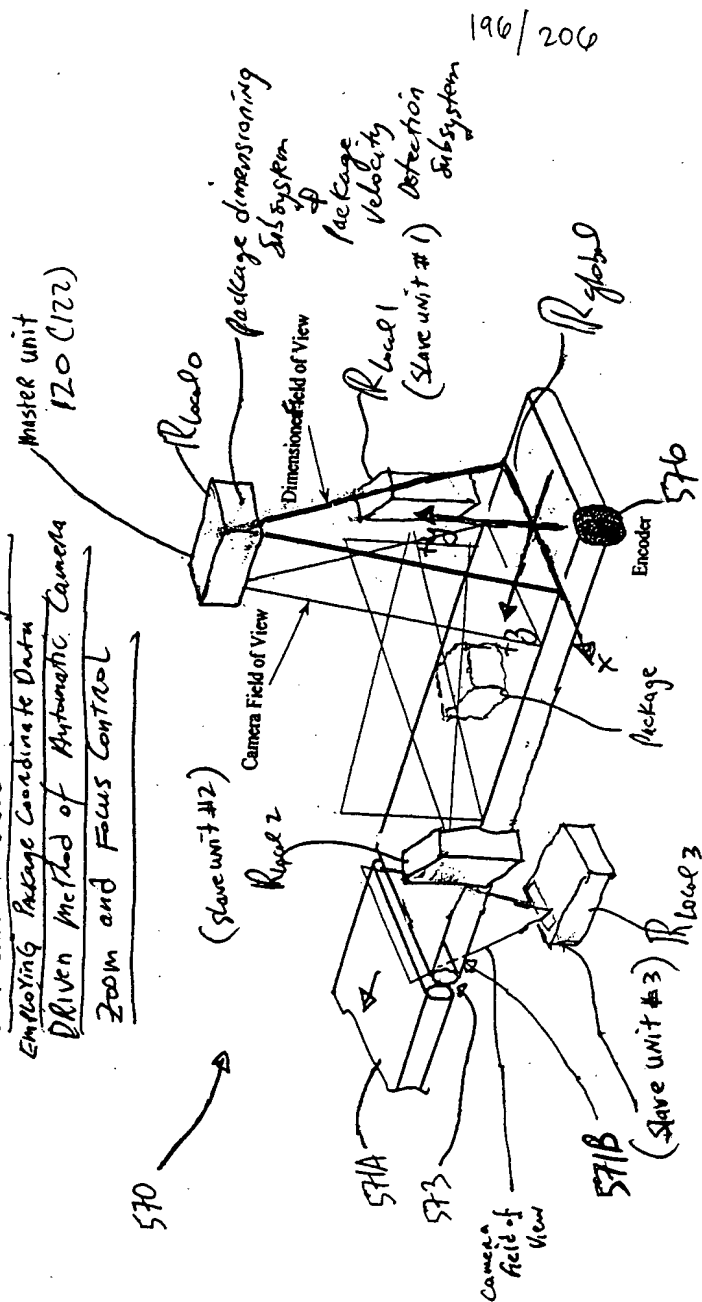
[illegible]

FIG. 29

1034430 44300



CCD Camera-Based Tunnel System
Employing Package Coordinate Data
Driven Method of Automatic Camera
Zoom and Focus Control



Package coordinate data \xrightarrow{HG} Package coordinate data R_{local}

FIG. 31

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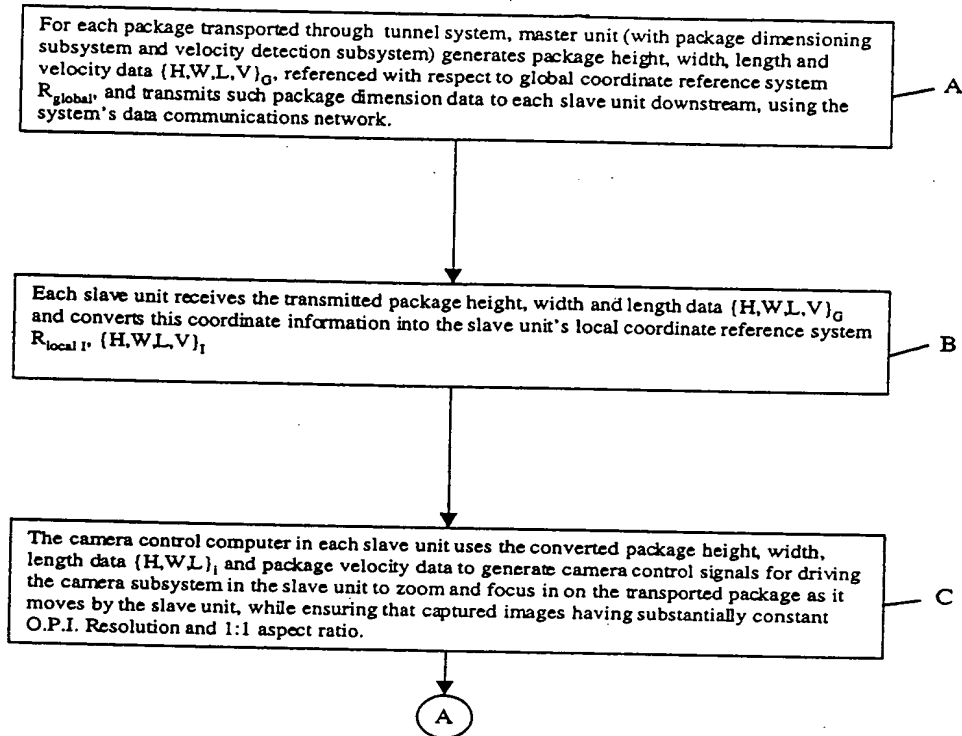


FIG. 32A

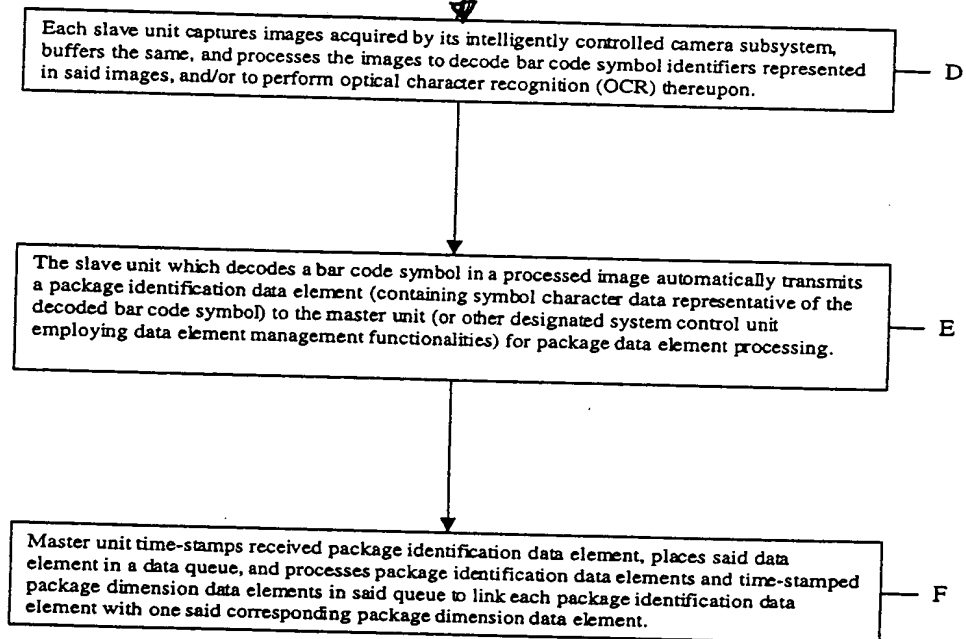
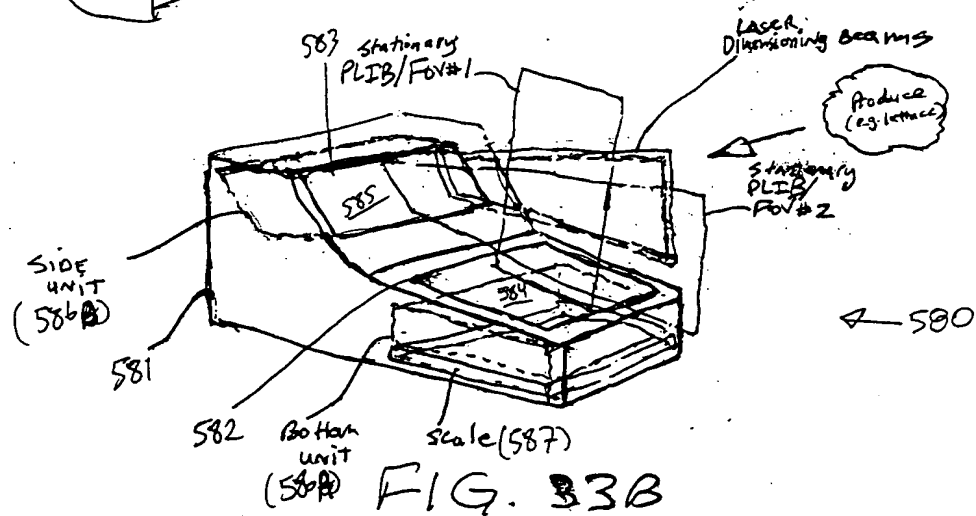
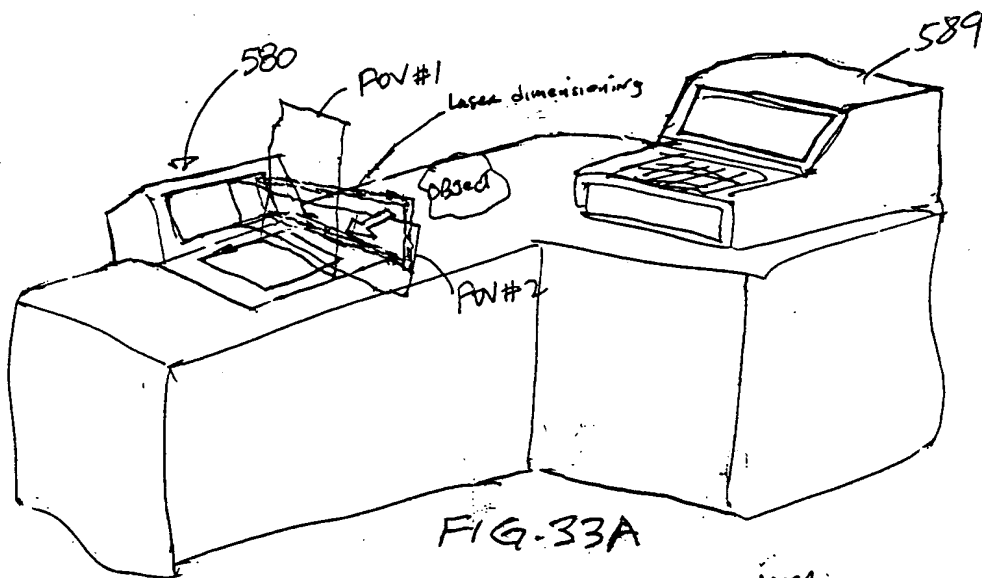


FIG. 32B

00003430 42504

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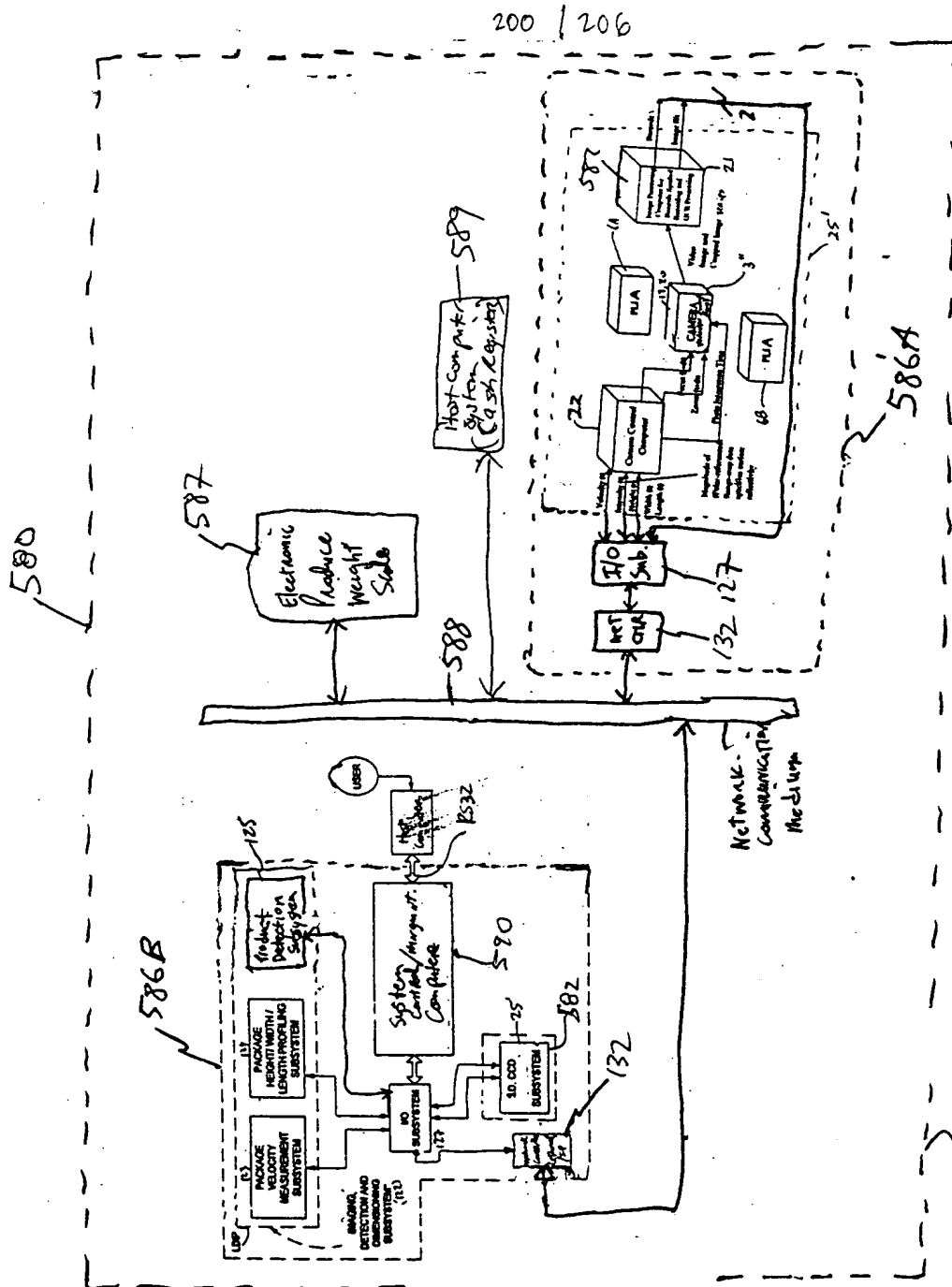


FIG. 33C

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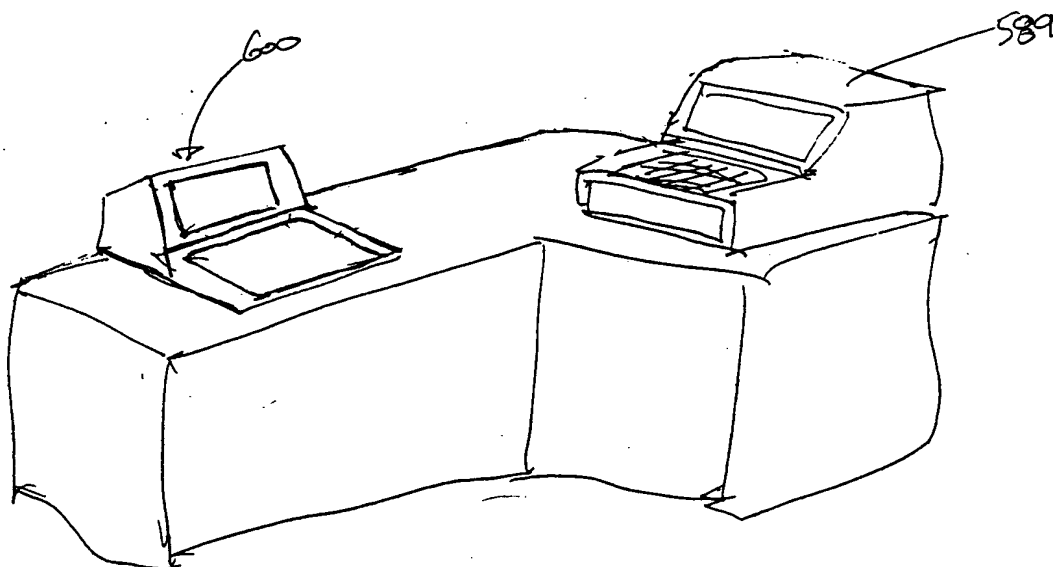


FIG. 34A

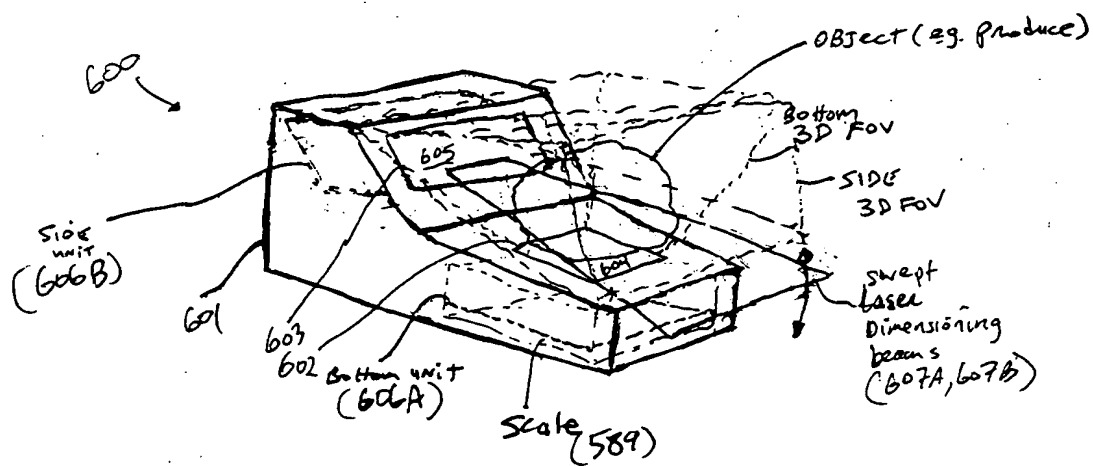


FIG. 34B

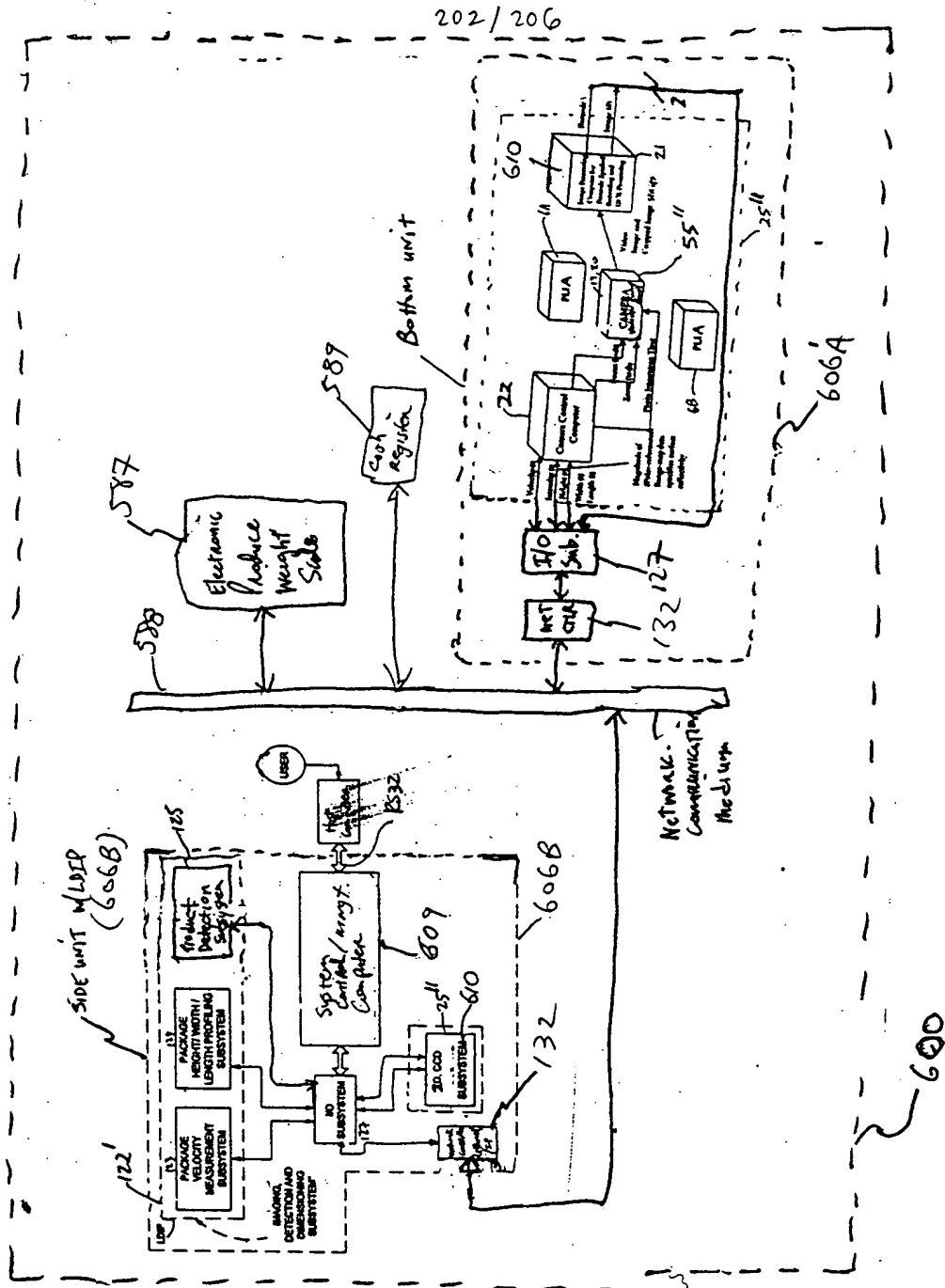
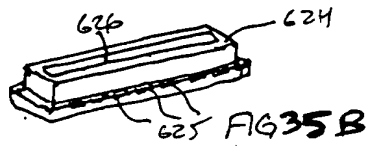
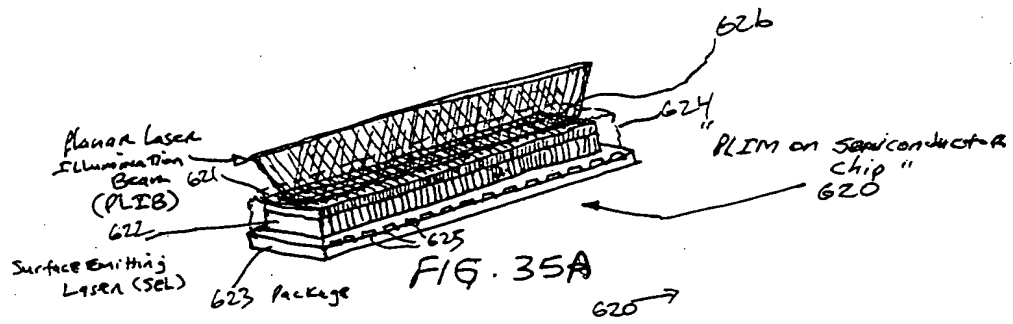
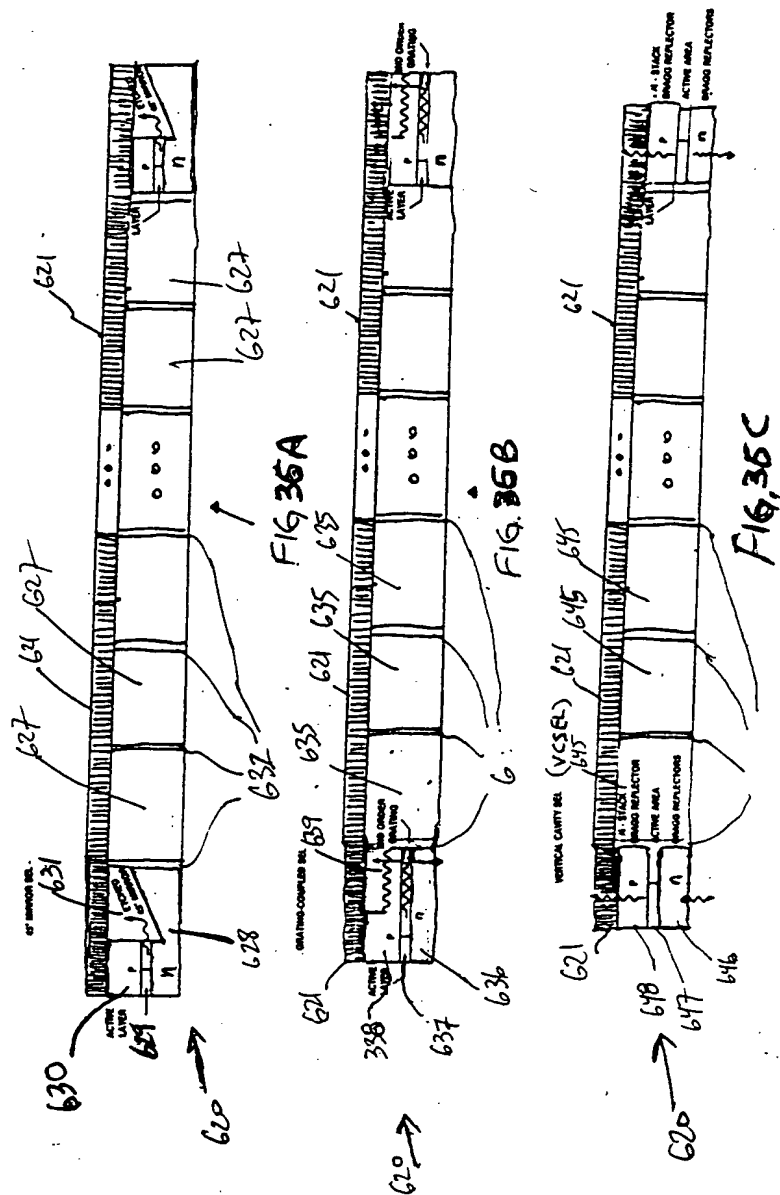


FIG. 34C

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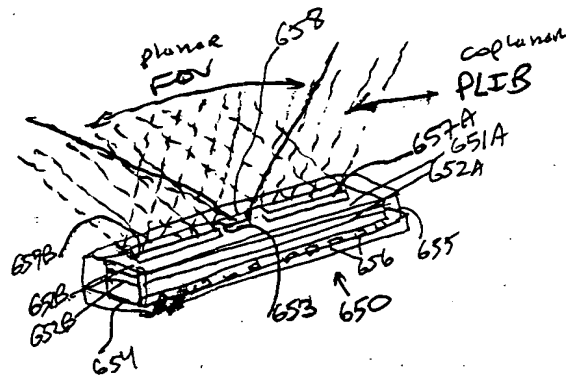


FIG. 37

0908130 1 2304

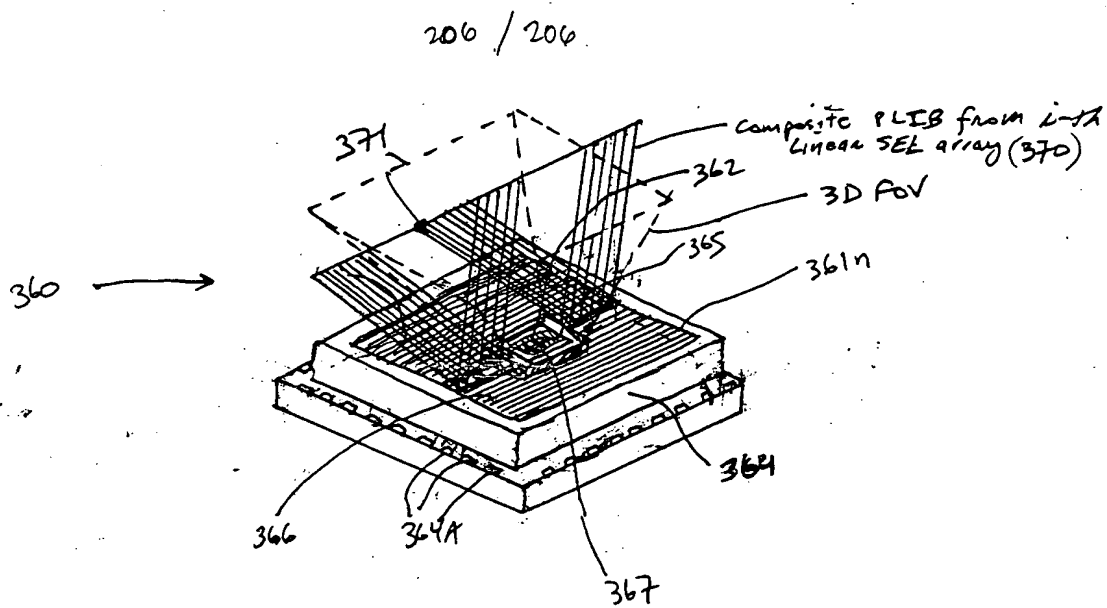


FIG. 38A

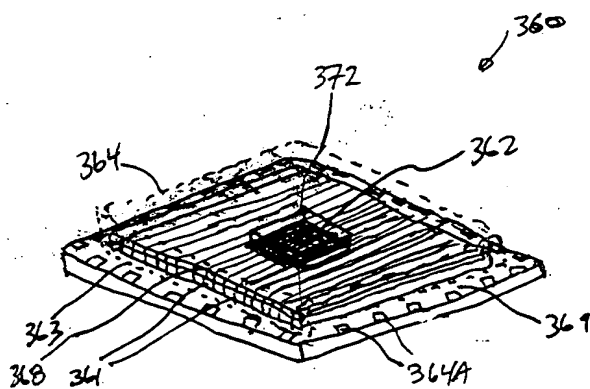


FIG. 38B